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3dcreative

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>>Normal mapping expained! by expert artist Misja Baas of Gorilla in Holland

INTERVIEWS

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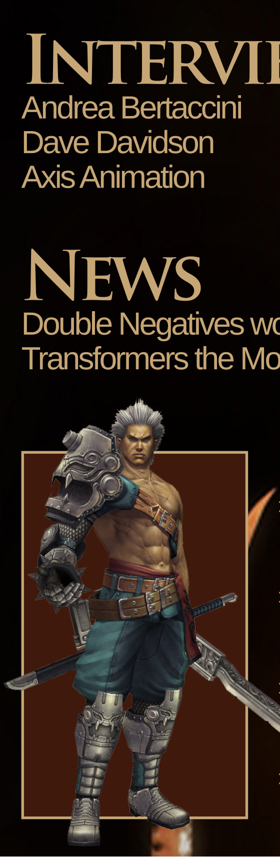
Dave Davidson
Axis Animation

NEWS

Double Negatives work on 'The Da Vinci Code'
Transformers the Movie teaser trailer



SWORDMASTER

>>continuing complete chracter creation monthly tutorial for 3DSMax, Maya, Lightwave, C4D & XSI

COLOUR

>>Part 2 of 2 this tutorial by Richard Minh Le

TEXTURING MASTERCLASS

>>an Introduction to 'Evil Genius' & 'Metal Balls' by Siku

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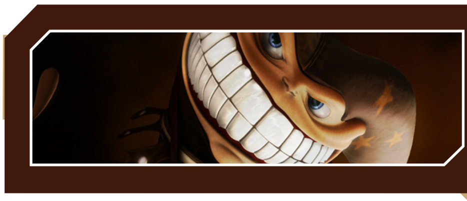

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WELCOME

to the 12th (yes! that's a whole year!) of 3D Creative magazine. We have celebrated this in the office this month by purchasing an X-UFO, which can only be described as the best way to spend a working day without alcohol! It flies and dives and spins in the air, powered by 4 propellers, and as we eagerly sit here staring at the battery charge light to go out I cant help but think that the magazine maybe falling behind as a result...But no! Once again we have outdone our selves with content and we really are having trouble seeing why anyone would buy an other magazines...;-) Seriously, we cant thank you enough for supporting 3DCreative and appreciating exactly what we are trying to do. Remember that whilst other magazines are full of adverts and 'press release' articles, we are striving to provide you with original, exclusive content every month. And not just any old content, we are providing you with exactly what you have asked for in all your wonderful emails to us here in the office. We DO read them all I promise, and we also reply to every single one of you to show how much we appreciate you coming back every month to purchase our mag. We will be seeing a slight change in the way things work in a few months as you will no longer have to pay to download the magazines, just pay for an access code which is automatically stored on your computer for even easier purchasing! We are experiencing a slightly overwhelming number of copies of the mag being stored on central drives for all to see for free etc but hopefully with your help we can combat this to secure the future production of our magazines.

ABOUT US

Zoo Publishing is a new company comprising of a small team here in the Midlands, UK. This magazine is our first project which we are hoping, with the support of the community, will build into a great resource and a highly anticipated monthly release. The 'support of the community' is an interesting point, where a 'magazine for 3d artists' is not an original idea, the marketing and distribution of this magazine, as far as we know, is a first. It follows the principle of traditional magazines that are sold on news stands and in many outlets, but being a digital downloadable mag the many established web communities on the net are our outlets and newsstands. 3DCreative is supported by 3dexcellence, 3dkingdom, 3dlinks, 3dm, 3dmonkeys, 3dnuts, 3dpalace, 3dresources, 3dtotal, 3dvalley,123d, ambiguous arts, cgchannel, cgdirectory, cgfocus, cgunderground, childplaystudios, daz3d, deathfall, digitaltutors, kurv studio, max-realms, mediaworks, rendezvous3D, spinquad, subdivision, the3dstudio, thebest3d, vocanson & vanishingpoint.

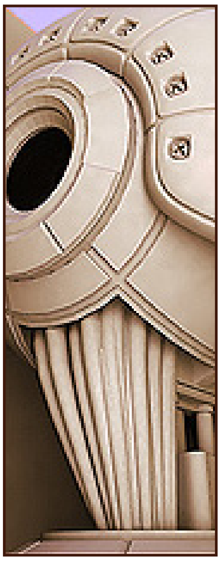
We look forward to lasting and successful partnerships with these CG community sites.

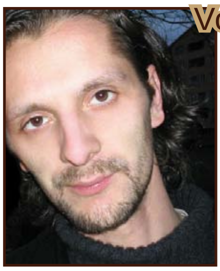
This months Contributing Artists

Luciano Iurino

I started back in 1994 with 3DStudio on MS-Dos as modeler/ texture artist. In 2001 I co-founded PM Studios & I still work for it as Lead 3D Artist. Recently we have developed the videogame "ETROM – The Astral Essence". I also work as freelancer for different magazines, web-portals, gfx and videogame companies. Recently I left the 3dsmax environment to move on XSI.

iuri@pmstudios.it

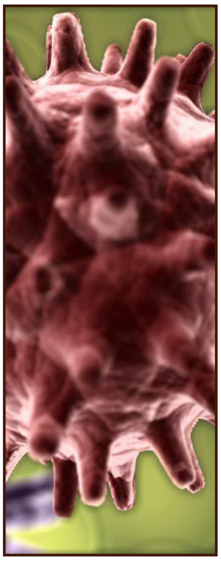


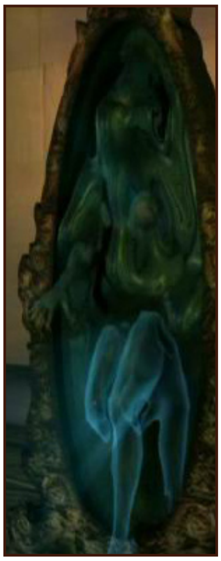


Vojislav Milanovic

3D modeler, animator, & vfx compositor, Anigraph studio, Self taught all-round 3D guy, started to doodle around in 3D about 8 years ago. In the last 5 years I have done a lot of various things from print and TV ads to gaming & movie graphics.Currently involved in multimedia study & character developing for an animated feature movie. One of my goals is to make my own animated movie

vojo@teol.net http://users.teol.net





Bogdan I. Suma

3D VFX artist Iasi, Romania. I started back in 1999 with 3D Studio Max but in 2000 trained in Maya. I've been a modeller and texturer for few 3D animated movies & two games. Also a modeller, dynamics & particles, lights & render supervisor for many commercials, musical video clips and industrial presentations.

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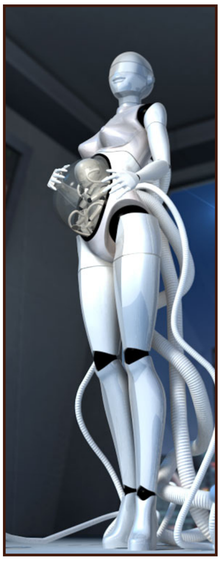
suiobo@yahoo.com

Niki Bartucci

Freelance 3d modeler, Italy. I started working in the field of Computer Graphics in 2000 as an illustrator & web designer. In 2003 I started using 3d software such as C4D & later 3dSMax. That year I worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PMstudios. Currently I'm a freelancer & specialise in commercials. I especially like RPG & RTS video-games.

niki@pikoandniki.com www.pikoandniki.



Giuseppe Guglielmucci

Freelance 3d modeler / Animator. I began to use computers with the epoch of the vic20 & Cinema4d was my 1st 3d software. I started working in the field of CG in 1999 in commercial design. In 2003 I worked on ETROM - The Astral Essence, RPG video-game for PC, developed by PMstudios. Currently I'm hoping to work in the video-games industry and develop my own game.

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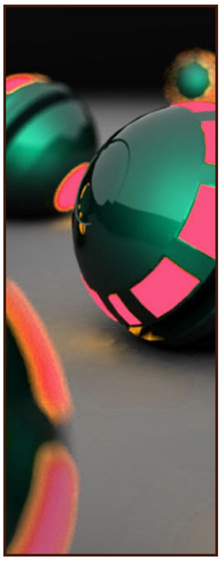
Contributing Artists This Months

Ali Ismail

Freelance3D modeler & Animator. Ali is currently working on multiple freelance projects until he finishes university. He will then have the opportunity to work as a full-time 3D artist & will continue to develop his 3D skills. Examples of his customers include ''Microsoft'', ''Schadler Kramer Group Advertising'' & many more. He also fully designed the first 3D games that were released in Jordan.

ali@aliismail.com



Richard Minh Le

3d artist, Australia. Pencil and oil pastel were my only tools until I started my Architecture degree at RMIT, where I was first introduced to 3dsMax and PS. My first professional work that involved texture painting and animation came to me in mid-2004 at SIAL lab. I am now working full-time as a 3D artist.at RushWright Associates.

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Andrea Bertaccini

3D Artist, Forlì, ITALY

I studied architecture at the University of Florence. One day I was given a computer "and love has bloomed ", attracted by the possibility of giving life to everything was in my mind. As a consequence there was the passage to the three-dimensional world.

andrea.bertaccini@tredistudio.com

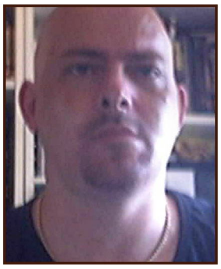
www.tredstudio.com

Siku

Concept artist / designer/comic book author> Fresh from Art College I worked as an advertising visualiser and designer. I then moved on to comics where my work was published for several years in 2000AD stripes under titles such as Judge Dredd, Slaine and a strip I co-created called Pan-African Judges.

mutantbox@aol.com

www.theartofsiku.com



Dave Davidson

freelance designer / 3d visualiser, Derbyshre> UK I have been a fulltime freelancer for 6years, before that i was senior designer for a couple of design companies. I've been using 3D since 3D studio Dos v3. My main application of choice is C4d which I have used since V5.

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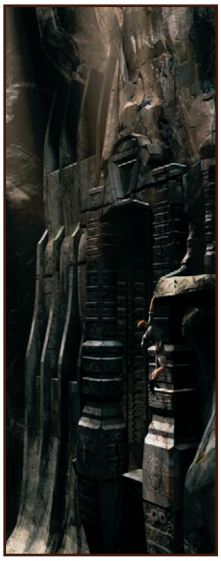
www.max3d.org



Richard Tilbury

Have had a passion for drawing since being a couple of feet tall. Studied Fine Art and eventually was led into the realm of computers several years ago. My brushes have slowly been dissolving in white spirit since the late nineties and now alas my graphics tablet has become their successor. Still sketch regularly & now balance my time between 2 & 3D although drawing will always be closest to my heart.

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AN INTERVIEW WITH

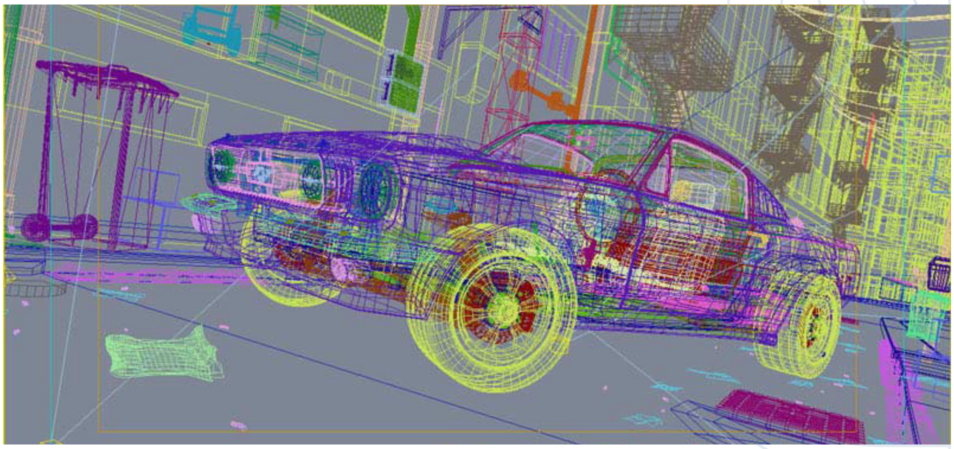
ANDREA BERTACCINI

ANDREA

BERTACCINI

Can you tell us a little about how Tredistudio came about and the motivation behind its creation?

The initial motivation was always the wish of creating a high level project (it does not always happen). Then there is the inspiration; for us a good idea is a big part of a project. Another motivation from a purely commercial point of view is the money of course. The inspiration is difficult to describe if you can't explain it yourself. Sometimes I look at an object and I immediately have a spontaneous idea and other times I am concentrating for hours, but I am not able to realize anything. When I have an idea, I try to focus it in my mind, then I sketch it with the pencil, then I develop it adding the details. We try to be very fond of everything we do, even the most simple of things.



What is your role within the company?

I founded the Tredistudio in 2000 with Alessandro Lucchi and Cristiano Biserni I especially work on all the 3D projects; sometimes only at the final phase but many times from the beginning through to the end; I love to follow all the work phases.

> "A GOOD 3D ARTIST MUST BE FIRST OF ALL A GOOD DRAUGHTSMAN"

It sounds as if you are very involved in the actual production of the work your company produces. Is this important to you and does it limit the number of projects you are able to take on?

Yes to me it is important to follow all the parts of the production, probably this means it limits the number of projects but we prefer look at the quality, not at the number of the works.

Where do you think Trestudio has been most successful?

We put the same enthusiasm into all the work we make, both large and small scale and for us it is the final quality of our work that matters, and respecting the client's wishes.

How many people does the studio employ and are there many dedicated specialists amongst them such as character artists for example?

We are three partners, Andrea Bertaccini, Alessandro Lucchi and Cristiano Biserni and a senior collaborator, Luca Berti. Each one of us has various specializations, starting from architecture to graphics and programming. For some projects we involve external collaborators, who often work with us. Normally I work on the characters, texturing and lighting of a project.

What are the advantages and disadvantages of offering such a broad spectrum of services in both 2 and 3D?

I think that the two worlds are connected; a good 3d artist must be first of all a good draughtsman. The advantage of working in both worlds is that our clients get a large range of products and for us it is the possibility to

expand the knowledge about techniques and software. The disadvantage is obviously the working time; normally we stay in office about 10-12 hours a day.

Why do you think it is important to be good at drawing before getting involved with 3D ?

I don't think it is necessary but it is better if you are a good drawer because it can help you to visualize the final project, the right light of an ambient or character and gives you the ability to better understand , the shape of complex characters or vehicles for example. All the projects are Ideas that have to be developed and made readable for all of us. Times ago we used the paper, today there's the computer, but the capacity to pass from the Idea to the draw has not changed.

> "...INSPIRATION IS DIFFICULT TO DESCRIBE IF YOU CAN'T EXPLAIN IT YOURSELF."

What have been the most enjoyable projects to work on and why?

Three Years ago we worked on a historical Cd-rom about some 2nd world war means of transport. It involved some animation of vehicles such as a battleship, tank and submarine. For this particular project we had a lot of liberty about the storyboard and other things like effects, the scene and the postproduction of the animation. It was a project that involved us a lot.

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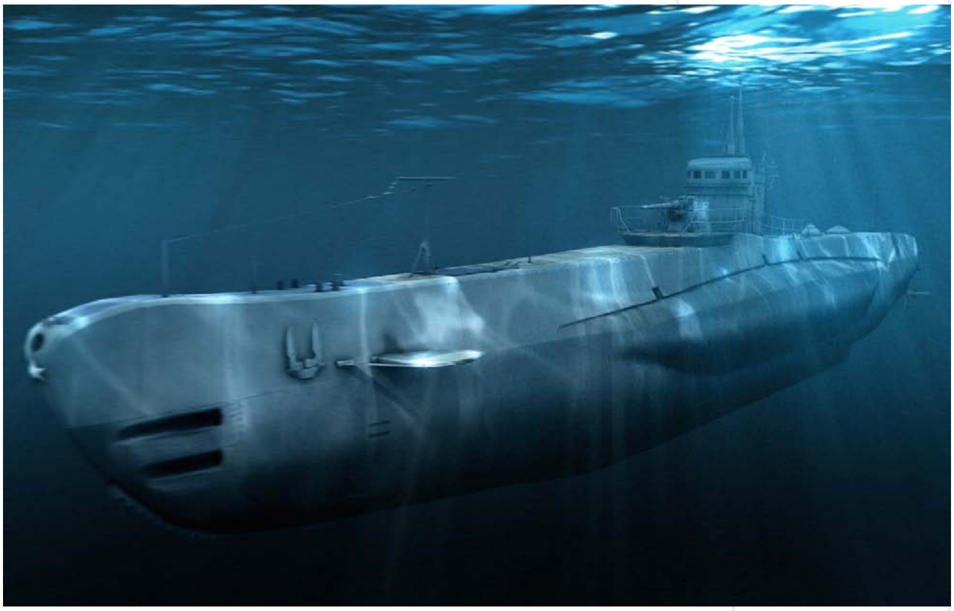
Is animation something that you would like to do more of in the future at all in the form of say short films?

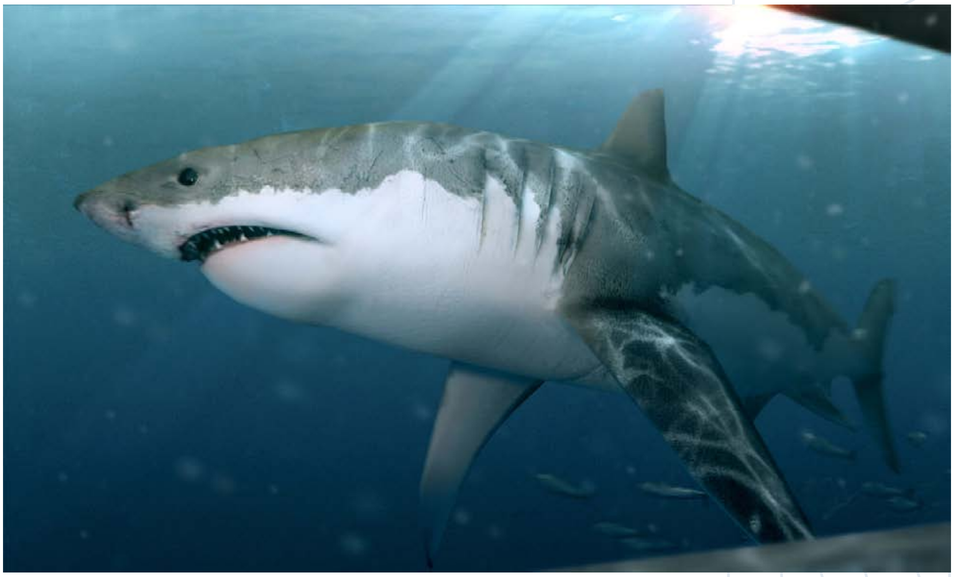
I made a little animation of an underwater great white shark, it is as if the cameraman is in a cage and looks at the shark.(you can find at: http://www.tredistudio.com/Shark.asp) I made that for a presentation of Combustion© and the integration with 3DS MAX©. It is a little animation not really evolved, but in the future I would like to make something big.

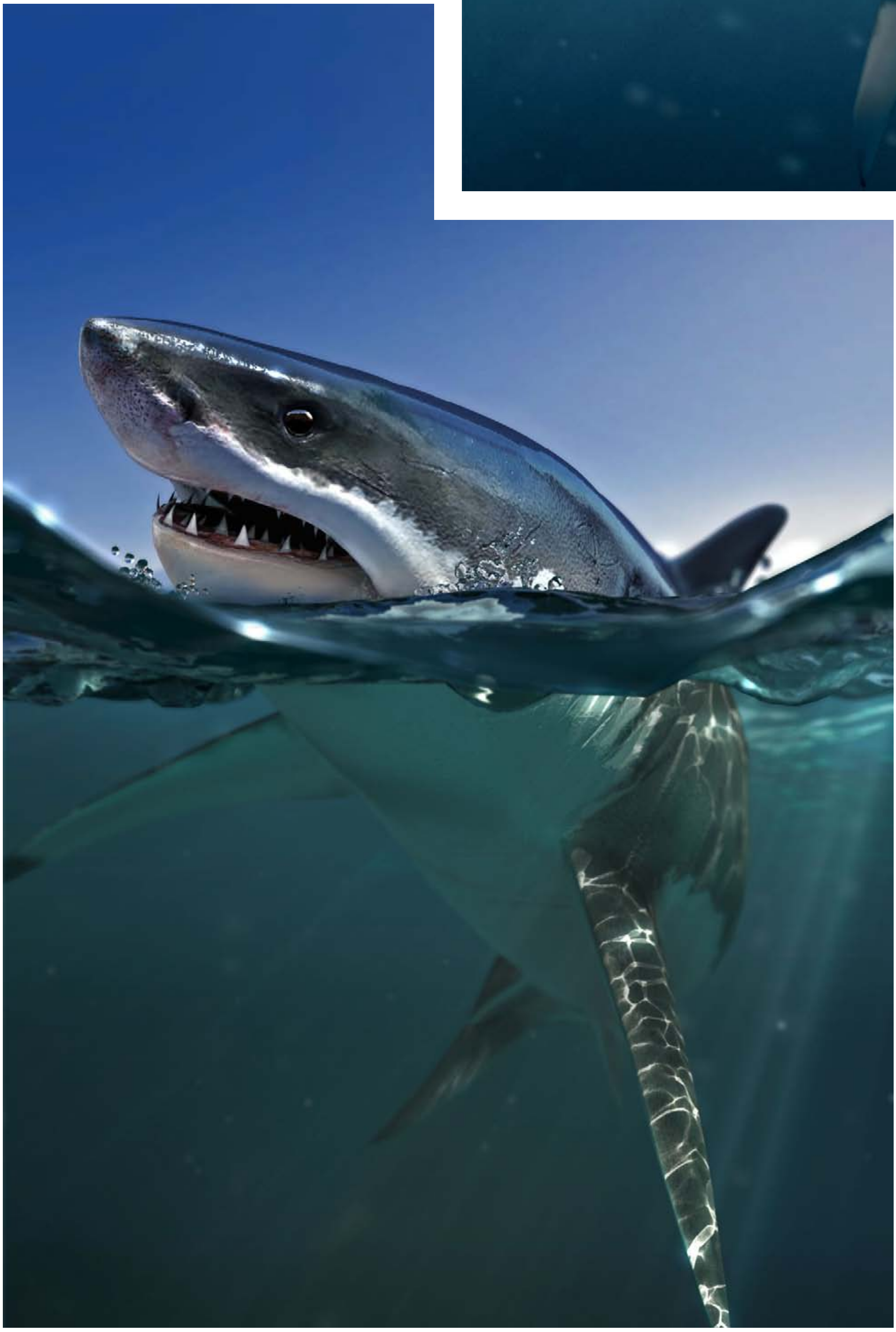
Tell us about the shark project?

It's a passion stemming from my childhood. The white shark is for me, something that scares me very much, but at the same time I'm attracted



to it. My first love came from the moment I watched the Spielberg movie. After that I read a lot of books, watched lots of documentaries (my house is full of White Shark videos) and when I started to work in this world I said to myself, “One day I will build something concerning the Carcarodon carcarias”. I love that predator; I think it is one of the most beautiful animals on the earth, both elegant and powerful.





The Idea came to me when I saw a news article on the television. There was a big white shark that took a bite out of a tuna fish on the side of a fisherman’s boat and I remember that the colour of the shark’s skin was dark and shiny.

The skin of white shark in the water reflects the colours of the environment, but when it emerges from the water (the only kind of shark that comes out of water completely), the skin becomes dark and shiny. I modelled everything with Edit Poly; for the water I used the Paint modifier to draw the wave around the shark and I used the BLOBMESH to make the bubbles in the water. The water material is a Brazil glass material with a 1.333 IOR and a green colour. All the underwater effects (Ray, DOF, plancton particle, fog etc.) are made in Combustion using the RPF file format from 3DS MAX. The caustic effect is a Mask on the direct light that simulates the sun. I created the rays with the DOLLY BLUR operator and some GLOW; concerning the Plancton I used the PARTICLE system of COMBUSTION. About the two different situations; (under and above the water) I split the model into two parts using the water plane and then included the lower part in the caustic light and excluded the upper part of the shark. It is simply two parts of the model. The rendering took 2 hours for a 3200 x 2000 pxl.

There are opportunities to go diving with Great Whites of the Californian coast and also in the waters around South Africa. Thought about doing that at all?

Some years ago I was scared by the Height and I did a Bungee Jumping. I think we have to face our fears, but going in a little cage and swimming near one of the biggest predators of the world is a more difficult thing to do; I hope to find courage because it will be a great experience

Thanks for taking the time to talk to us.

Thank you for giving me the opportunity to show me and my company.

ANDREA BERTACCINI

For more work by this artist please visit
www.tredistudio.com
or contact them at
andrea.bertaccini@tredistudio.com
Interviewed By : Rich Tilbury

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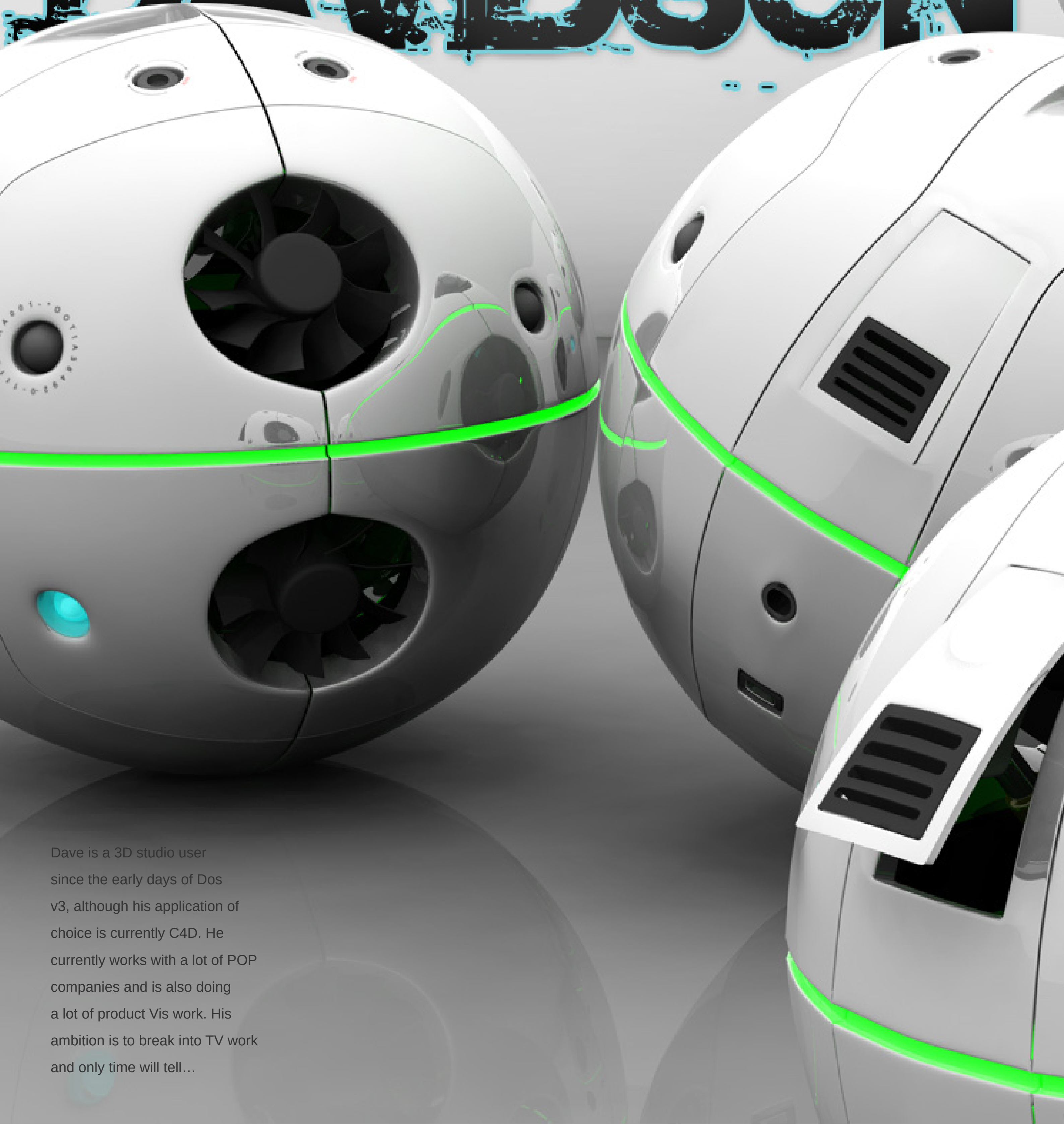
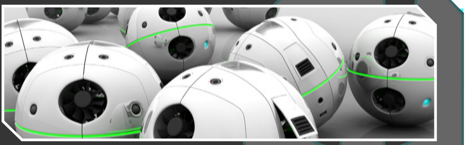
DAVE DAVIDSON



Dave is a 3D studio user since the early days of Dos v3, although his application of choice is currently C4D. He currently works with a lot of POP companies and is also doing a lot of product Vis work. His ambition is to break into TV work and only time will tell…



DAVE DAVIDSON

Hi David, we felt that your work was particularly relevant to our readers as you have produced a lot of commercial work, freelancing and have a very good reputation amongst your clients, what got you started on this particular journey?

The company I worked for closed and I was left with the option try freelancing or go find another company, I decided to try freelancing at that point as I had nothing to loose.

And what leads a perfectly sane individual to study Product Design at university?

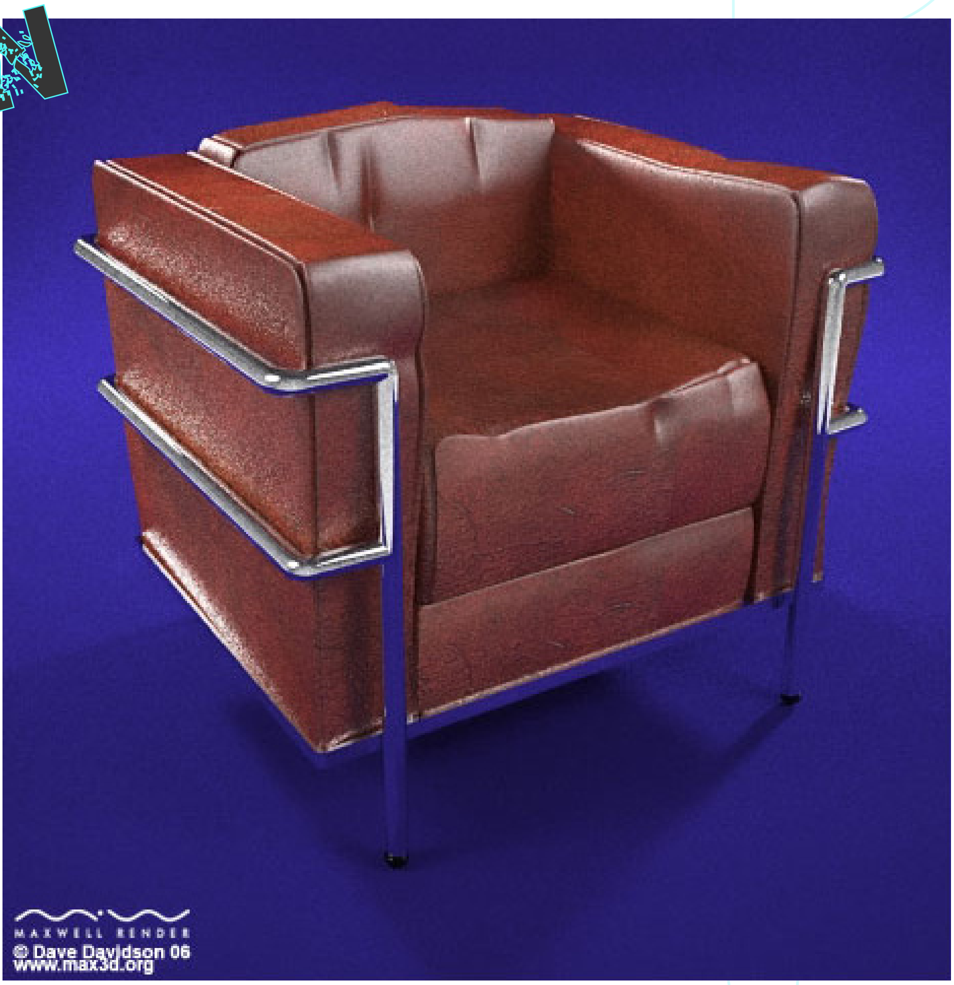
I have always been into art and design and while I was working as a head chef I started doing some art work for the company I worked for, then after 8 years+ I realised I didn't like cooking and decided to go to University. The main reason I decided to do 3D product design is because it involves both graphics/2D and 3D work so I get the best of both worlds.

Did the product design come first or the 3D for you?

It was a bit of both. I never really dived into 3D before university, but once at university it was needed to present my ideas to the tutors

I think your major strength is the fact that you can carry a project from conception to completion, doing all jobs in between, how important is that to modern freelancing?

I would say (imho) its very important to know how to run a project from start to finish even if you never have to do it. I feel it gives you a better understanding to how each stage should go. Plus when I'm designing something from scratch I like the fact that I can see it all the way through to the end and then in the stores etc.



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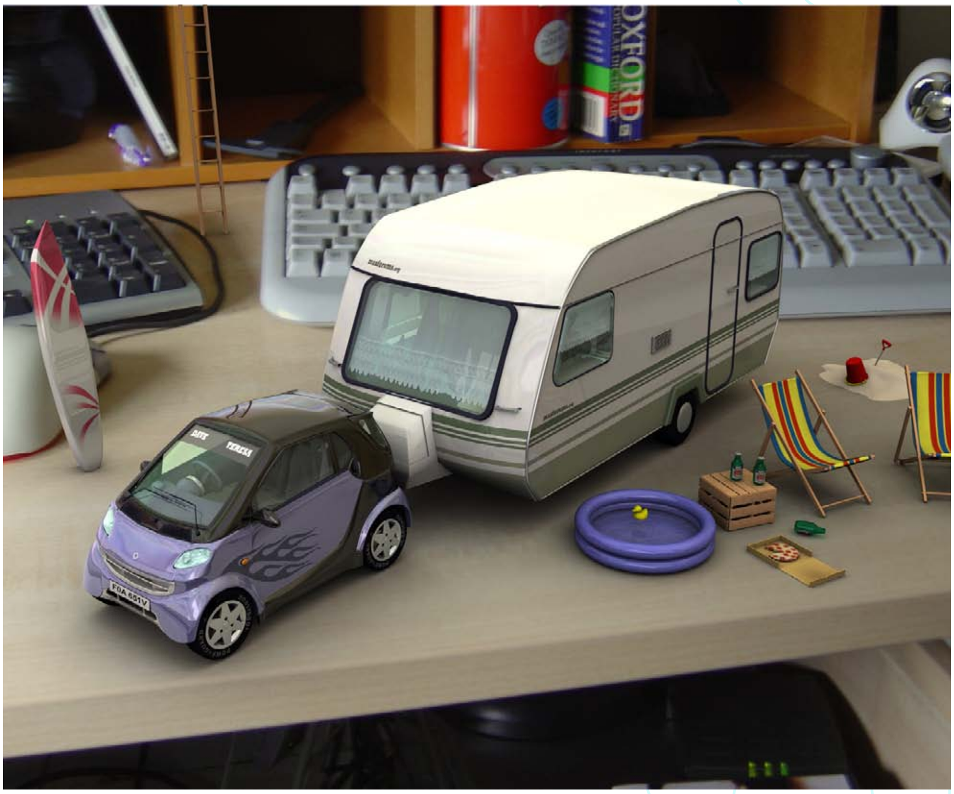

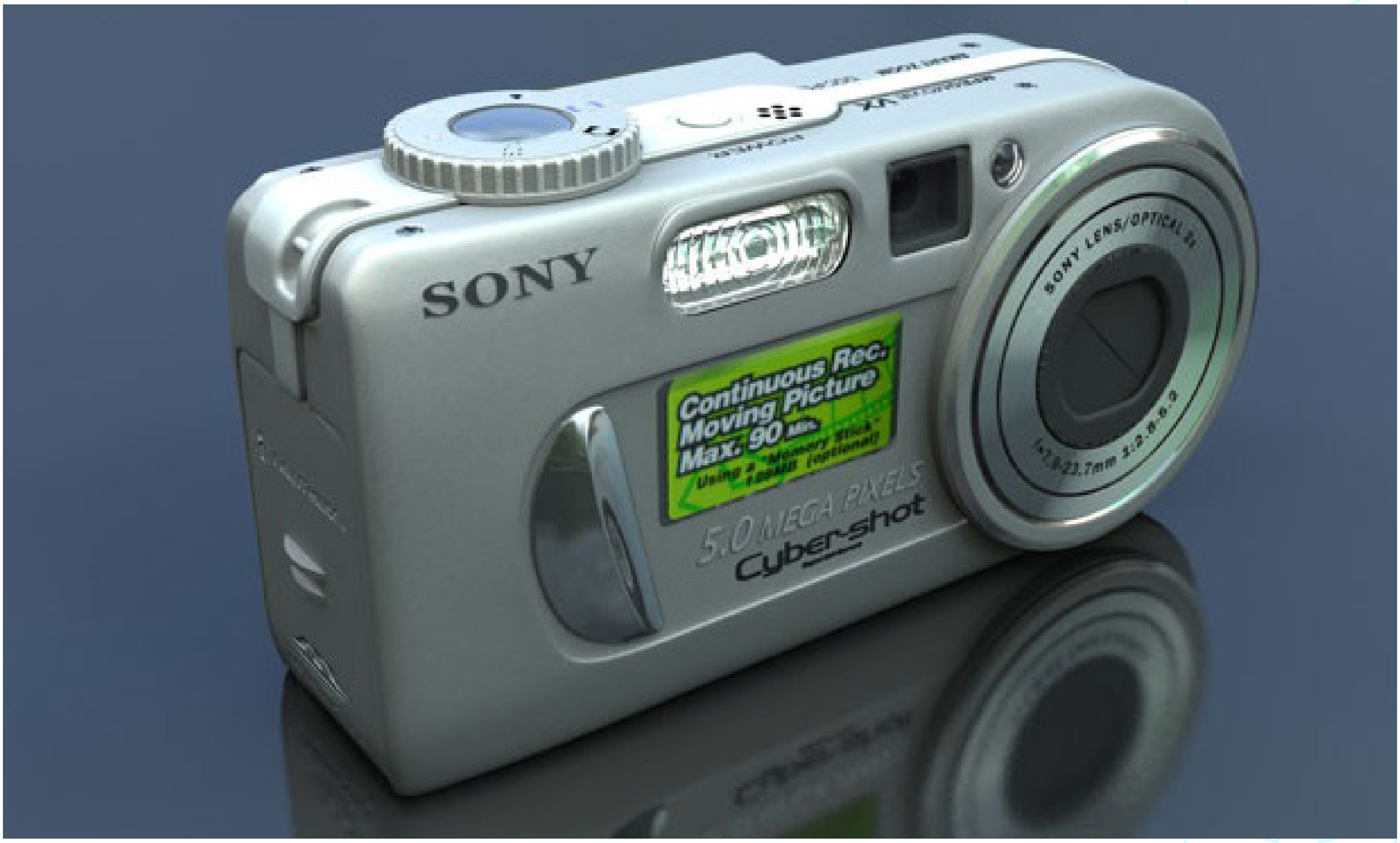
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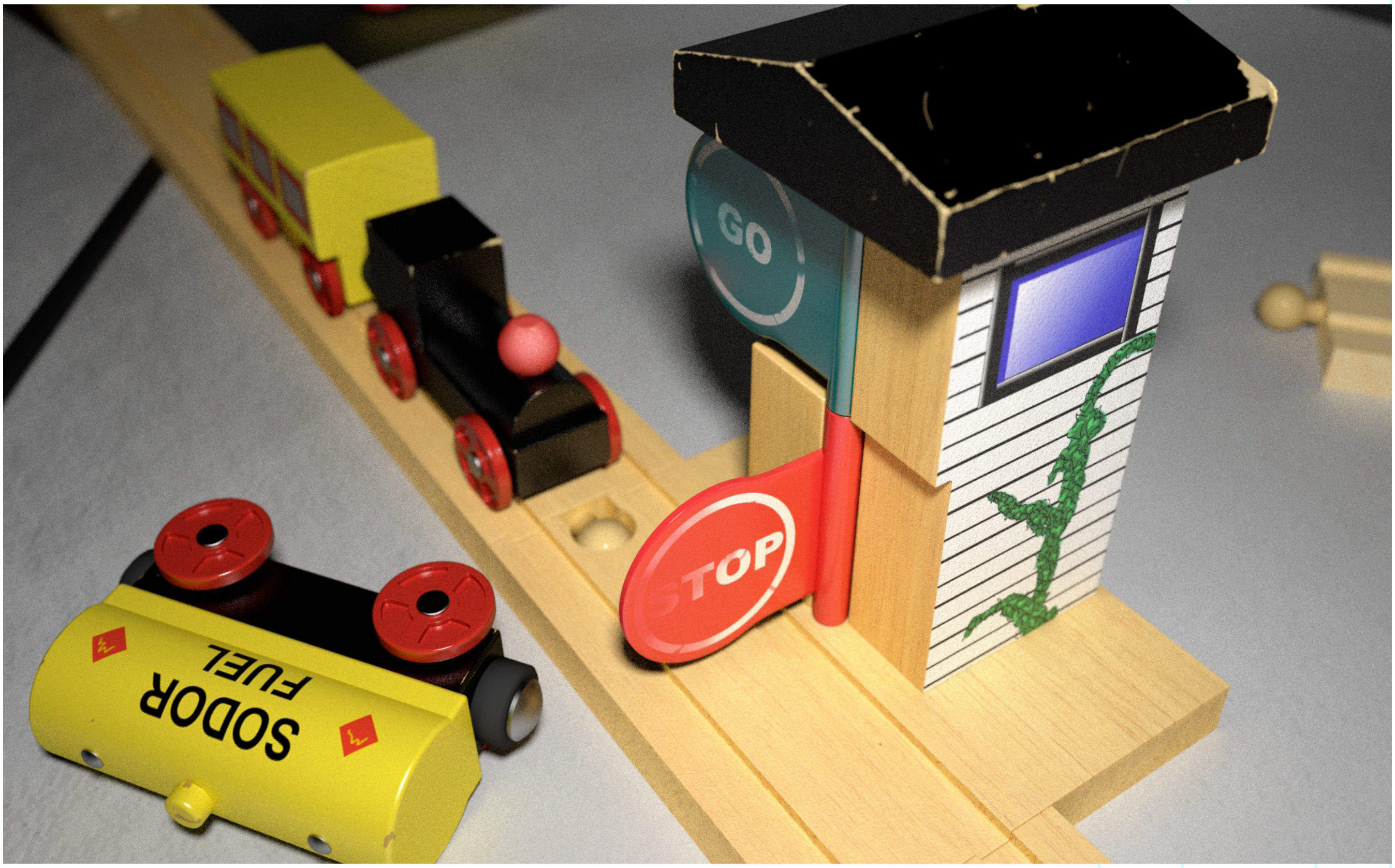
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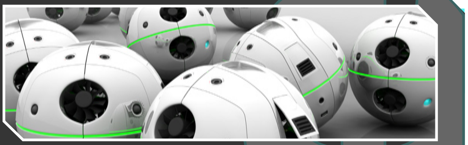

another bonus of designing from scratch is I can make sure I design something I can actually model :)

Could you work in a studio environment after 5 years freelancing?

I think I could, the idea of bouncing ideas with fellow workers is always a bonus, this is something I miss and dealing with one boss rather than loads (i.e. all my clients are bosses of me) would be like heaven.

If so, which part of the design process would appeal to you most?

The bouncing of ideas with fellow workers, I sometimes hit dry spots when I cant get my head around something or cant get motivated to produce ideas

Working on your own, how do you get

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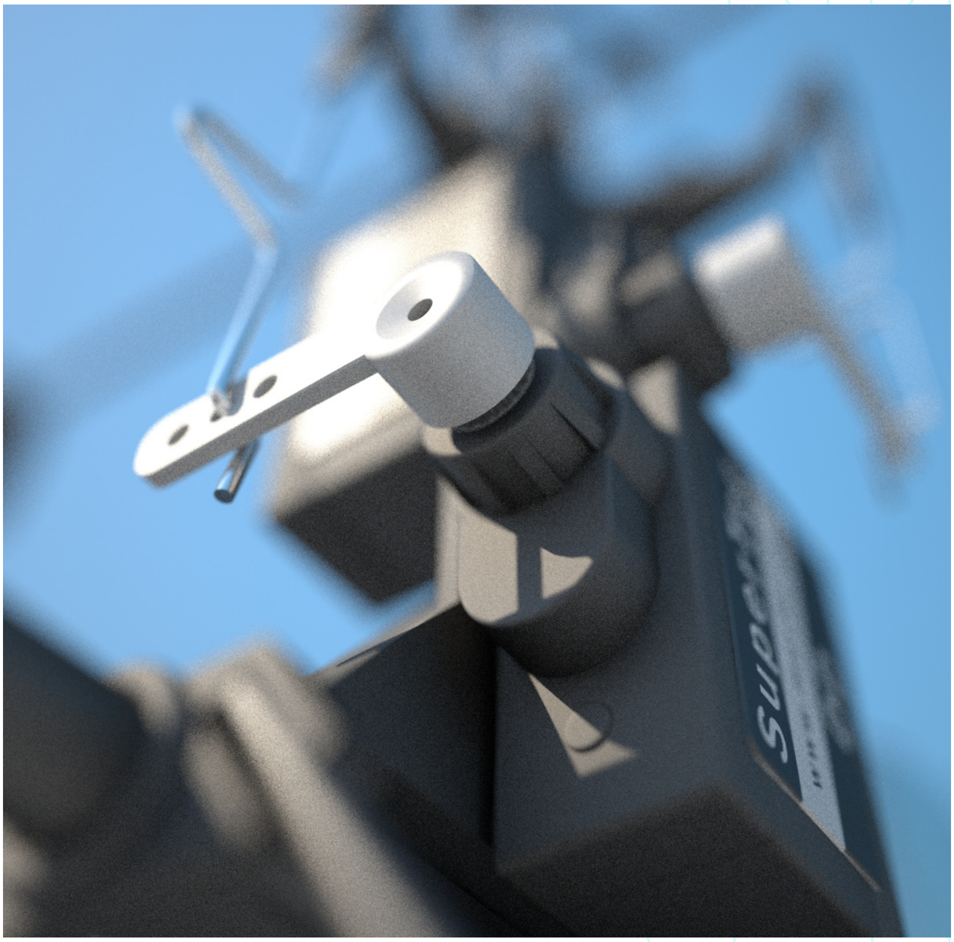
motivated?

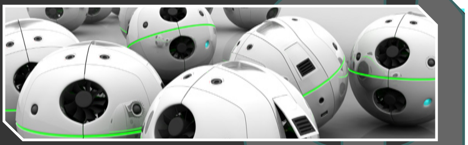
That's an easy one, I cant sit still for 2 minutes and this means I want to work every moment I can. If I cant get motivated I just go look around the internet to see some work that knocks my socks off and this gives me the push to go do some more work

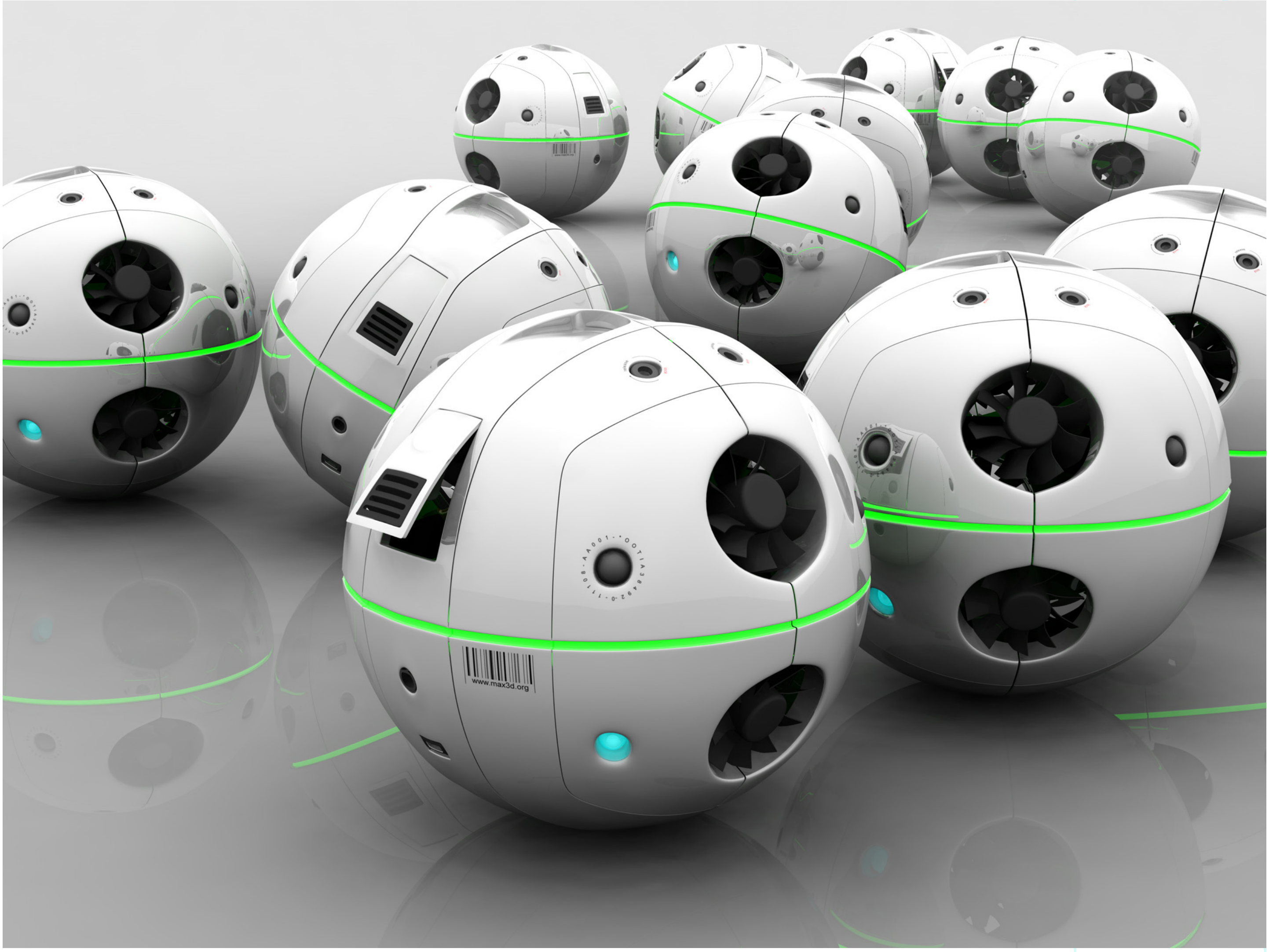
With the advent of 3D CG has product design & architectural design become easier over the years? Or do you think that it can sometimes hinder any parts of the process? HELL its easier than it was, which I love. I think the only hindrance is clients don't fully understand the process and they are always wanting more without knowing what goes into the final design/ image.

What software do you use and why?

I use cinema 4d as my main 3d application because it fits my needs, I know that when I open the application I will have all I need to get







the job done. I'm also using maxwell renderer now for many projects as i have fallen in love with the output i can get from it. the other software applications i use are the general 2D apps that every one uses, ie Photoshop, freehand etc. these are my bread and butter applications they are used and abused for texture making and presenting my work.

What have been your favourite project(s) so far and what makes them your favourite?

hmmm that's a hard one, I don't really have a favourite project as I have enjoyed working on a lot of my projects. I think that is due to the nature of what I do, the projects change pace, theme every time. Does that make sense?

What do you spend you personal time doing?

I spend my personal time doing personal projects in 3D, this helps keep me on my toes, as i'm always learning. And as I'm a freelancer I'm always looking at new ways to get clients. When not doing this I spend time with my family (as long as I'm not too far away from the computers)

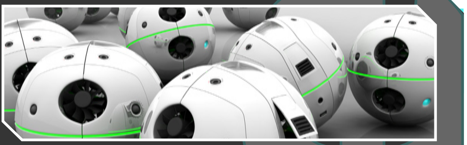
Why are these activities so important to you?

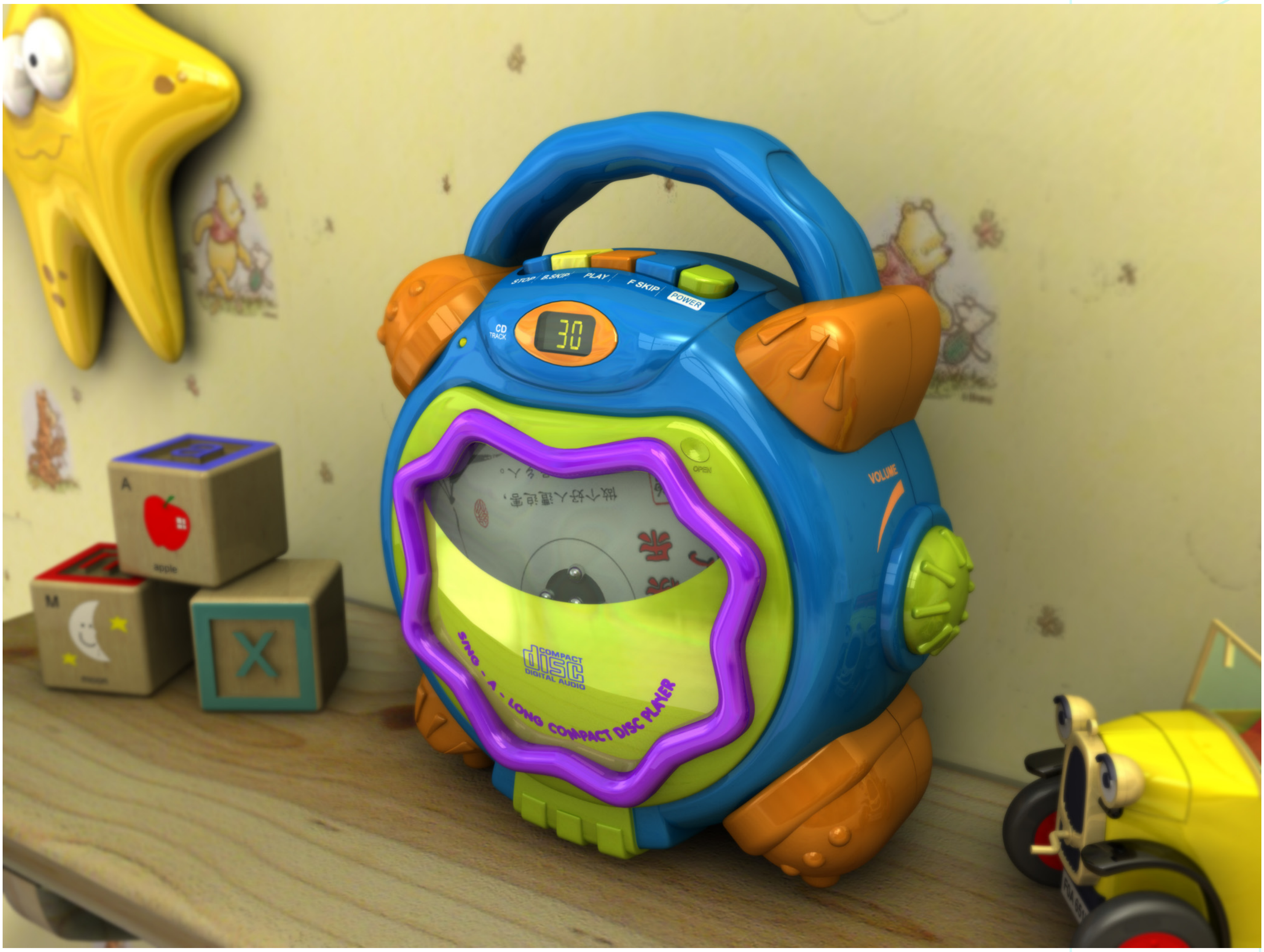
Well I love doing 3D with a passion and get bored quickly when I am not doing so (how geeky is that) plus it helps me to keep learning new ways and tricks. The other stuff is important because getting new clients helps me keep the people I love fed and clothed

Dream career change? (Totally away from CG if you like)

My perfect job would be where clients/bosses didn't change their minds every two seconds, had no deadlines to meet and have the right amount of money to pay at the right time :)

I know I was asking you to fantasise but geez! Like that will ever happen...do you not fancy a

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X

life as swimsuit model photographer?

lol ok one of my dreams is to win the lottery, buy an island (somewhere warm of course) get a few of my 3D friends together and set up a studio on it. Yes my dream would still include 3D but it would include sun, sand and jet bikes.

Thanks for talking to us David, and thanks for the good advice to any up and coming freelancers out there. Just to finish, what would be once piece of advice to anyone looking towards a career in 3D?

Keep at it, expect knock backs, down times and always try to be positive about your work and the projects you work on.

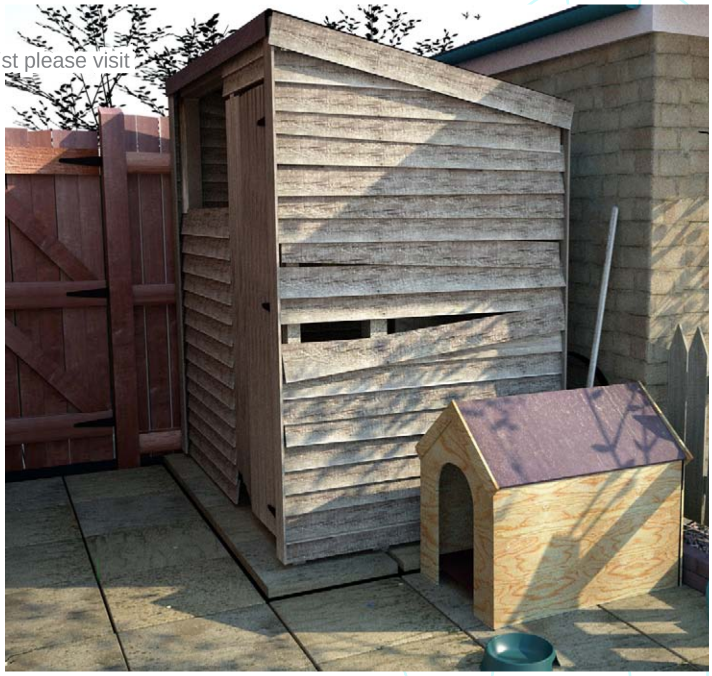
DAVE DAVIDSON

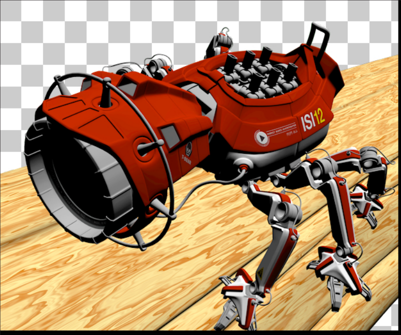
For more work by this art´st please visit

http://www.max3d.org

or contact them at

dd@max3d.org





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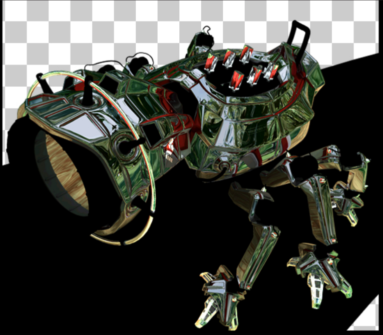
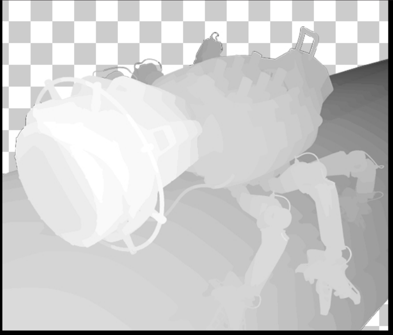


REFLECTIONS



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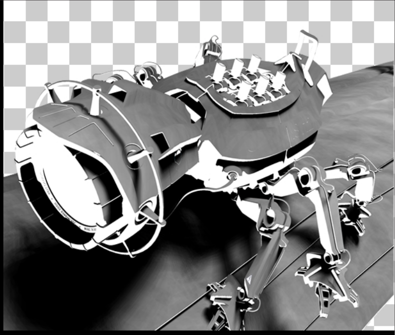
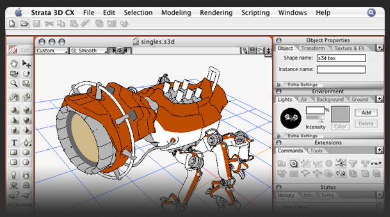


SHADOWS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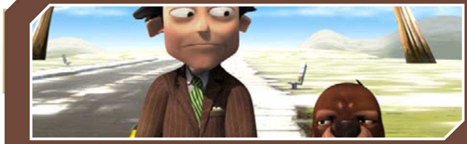
axis animation

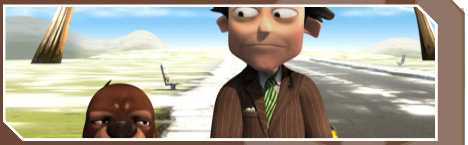
Founded in 2000 Axis are one of the UK's leading animation specialists producing stunning work for commercials, video games, broadcast promo's and series. Their work has picked up a number of awards and nominations including Welsh and Scottish BAFTA's, PROMAX Gold and Silver, Roses Silver, a LEAF award and New York Festivals Gold. We talked to jon and Dana about the past, present and future...



Are feature films something the company would consider specialising in given the chance or do you prefer a variety in the type and scale of the projects ?

Jon: It is an area that Axis are extremely interested in, we are currently looking at a number of film scripts, ranging in length from short films and 30 minute 'holiday specials' through to full length features. The level of potential input and involvement varies within those particular projects - on some, we will be 'guns for hire' on others, we will be taking a much more involved, active and creative co-production role, being involved in Script Development, Art Directing the look and style, right through to finished article. Whether the company moves towards exclusively specialising in feature films is something that only time will tell. They say variety is the spice of life, and at the moment, there is a real energy and vibrancy here at the studio due to our involvement and interest in several areas: Games, Commercials, Broadcast and Film - each of these in their own way offer challenges, excitement and a creative response that allow the Directors, Producers, Artists and other Axis team members to exercise their creative and stylistic muscles, as well as their individuality, in genres that they find interesting and rewarding.

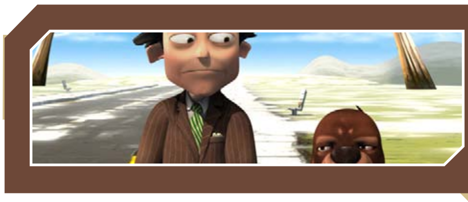
Dana: Feature film projects are something Axis is very interested in and are currently in the early stages of co-developing a feature film script. Ideally Axis would like to work on both long and short format projects.



Is it often that people with specific skills have to be drafted from one project to work on a new one if it suits their style or talents or do people dedicate themselves to a project through to a conclusion ?

Jon: Flexibility is the key here. We have a core team at Axis, as well as specialising in one key area, such as character animation, these people generally have a number of other skills and abilities that can be brought to bear either on the project they are involved in, or on other projects. In addition to the core people, we expand and recruit (usually freelancers) if necessary to ensure we have the best talent that a project might require, for example, if a project requires 5 great cartoon style animators working it, we will ensure that we have 5 great cartoon animators working on it. The Director and the Producer, however stay with the project the entire duration, from inception to completion, they are the backbone around which the rest of the project is fleshed out. Other people, depending on the size, scale and requirements of a project may also be on from beginning to end, for example, the CG Supervisor. Given the nature of CG animation, where the work flow pipeline generally allows elements to be completed in stages i.e. Concept Art and Story boarding at the beginning, then Modelling, Texturing and Rigging, Animation, Lighting and Rendering, and finally Compositing, different people are involved at different stages, rotated on and off the project as it makes its journey from idea to completed piece.

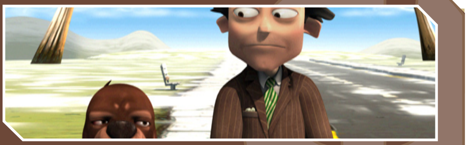
Dana: At the start of a project we put together a team that we feel best suits the style of the project. The team is typically made up of a producer, director, animators, modelers, lighters and compositors. Each artist will stay with the project until there task is done, and then they'll move on to another job. For example a character modeler will be be set the task of modeling and texturing a few characters for a piece of animation, and when they are done they will hand off the models to the animators then move onto another project that needs modeling. The only people who work on a project from start to finish is the producer and the director, and even then it's common for them to be working on more than one project at once depending on the size of the projects.



You mention creating cartoon as well as realistic work. Do you have artists dedicated to particular areas such as modelling and texturing or does everyone know a little of everything?

Jon: As mentioned previously, flexibility is the key. Axis is lucky in that most of the people here have a core talent, an area of expertise or creativity that they and the studio focus on, and other abilities. We play to and utilise their strengths and, as often as possible, give them work which they find personally creatively interesting and rewarding. We also make the most of any secondary abilities they have, whether it be a Production Assistant who also has a great sense of design, a Producer who has a fantastic creative streak, a Director who has brilliant editing skills or a Technical Director who has fantastic character modelling abilities. We like to get people involved as much as possible, this is something which helps to make Axis a great Creative Environment and contributes real strength to the work the studio produces.

Dana: In the beginning when Axis was we had no choice but to do everything, but as we grew we were able to specialize a little with some



PETROI
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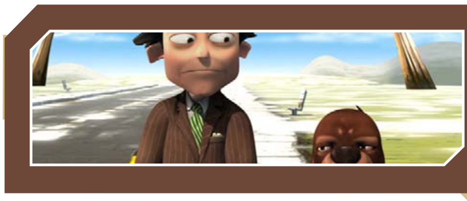


crossover. For example: animators at Axis tend to only animate, although sometimes they'll do a bit of rigging and simple modeling. We find it's a lot more efficient to play to artists strengths.

Finally why Glasgow as a base ?

Jon: Why not? Ok, the weather isn't always the greatest, but in all seriousness, there is no real valid reason for not having an animation studio based in Glasgow. Glasgow has two major Broadcasters based in the city, both of whom are building flagship headquarters in an area that will become part of Glasgow's new Digital Media Village. The city is also building a new Business District. The studio is ideally situated to be close two and part of both areas. Scotland has a long and illustrious history of Creativity and Innovation, ideas and inventions which have come from this small nation have had a major impact on the world stage. We'd like to think in our own small way that we are continuing that tradition. Our client base is really is global. It might perhaps be arguable that if we were London based 'on their doorsteps' in a manner of speaking, more London clients might approach us in an informal manner on a regular basis. Being situated in Glasgow allows us the opportunity to foster and nurture home-grown talent, that said, our team also come from all over the globe, we are an extremely outward looking studio, we certainly don't have a parochial attitude. In addition to having a global client base, we also look for strategic partners and Co-Production partners outside of the UK. All of this of course does not mean that we are ignoring the UK, there is an amazing amount of talent, opportunity and some fantastic clients within the UK that we are excited to be part off and to have the opportunity to work with.
One additional real benefit of being based in Glasgow is that it allows us to offer extremely competitive rates for the quality of work we carry out. Another is that we have the potential to access both local and national funding for Co-Production projects that we become involved in. On a more human side, a number of the team also have friends and family roots in the Glasgow area. Then there's the great nightlife, the friendly atmosphere, fantastic scenery and wonderful places to explore at the weekend.

Dana:
Glasgow has a strong media community with two major broadcasters based in the city centre, and if for no other reason it's where a lot of our friends and family live.

Thanks for taking the time to talk to us.
It has been a real pleasure, thank you for your interest in our studio, our work and our team!

Axis Animation

For more work by this artist please visit www.axisanimation.com or contact them at dana.dorian@axisanimation.com

ERIC BY ANDREY KRAVCHENKO

'With a Twist'
Studio teams
with 'Imaginary
Forces' to
do the heavy
lifting to
launch
Dreamworks
blockbuster
'Transformers'
the Movie
teaser trailer.

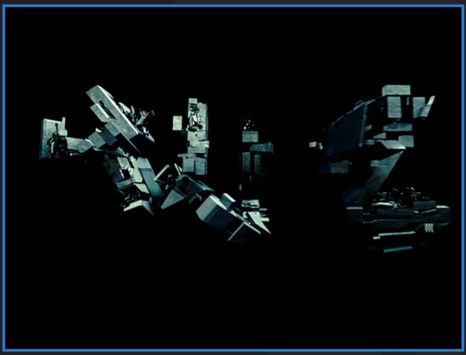
Transformers with a twist & imaginary forces

With A Twist recently collaborated with Imaginary Forces (IF) and DreamWorks Pictures on a teaser trailer for Transformers, the upcoming Michael Bay blockbuster about a race of alien robots that menaces the Earth. The computer animation and visual effects studio performed CG work for a spectacular title reveal featured in the trailer where “Transformers” is rendered as giant, 3D metal characters floating in space. The characters undergo rapid, dynamic transformations, turning first into the film’s release date, “7.4.7” and then into the robot’s brooding shield. Imaginary Forces designed, modeled and animated the title reveal. With A Twist handled lighting, texturing and rendering.

“This is the first taste that Transformers fans will get of the new movie,” explained Imaginary Forces Art Director Sean Koriakin, “so we had give them a sense of what the new Transformers will look like and how they will move without actually showing them.”

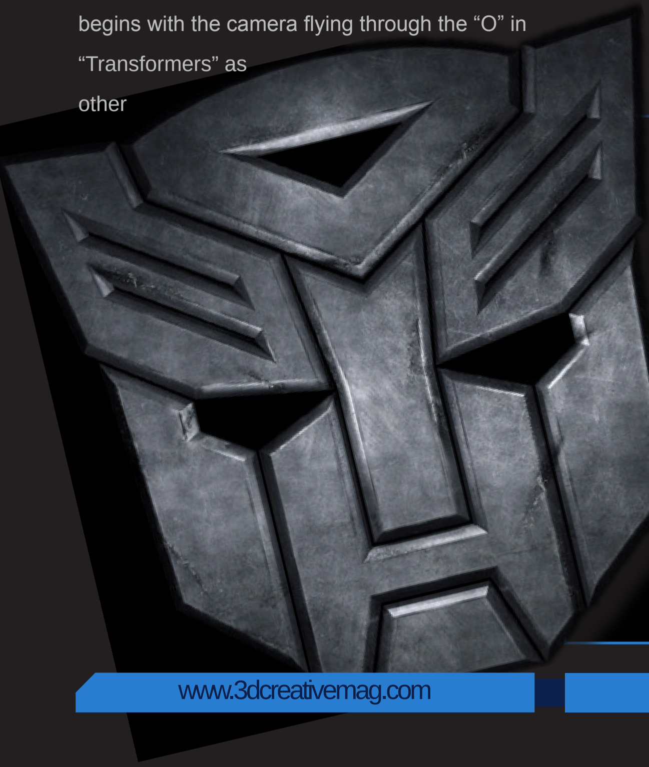
The title reveal and transformations, though brief, are exceedingly complex. The sequence begins with the camera flying through the “O” in “Transformers” as other letters assemble themselves from thousands of component parts. The dynamism and ominous tone of the sequence is enhanced by the rich textures and lighting effects applied to the characters by With A Twist, which make them appear to be wrought from weathered and battle-damaged metal. With A Twist employed a team of CG artists to apply color, texture and lighting to each of the thousands of elements that make up the title. “Lighting was especially challenging,” noted With A Twist Visual Effects Supervisor David Burton. “Light, of course, doesn’t really exist in space, so it is tricky to make an object appear to be sitting in space while highlighting its details.” Burton added that With A Twist’s large render farm aided in the process of finding the right look as it allowed the studio to quickly produce test renders for client review.

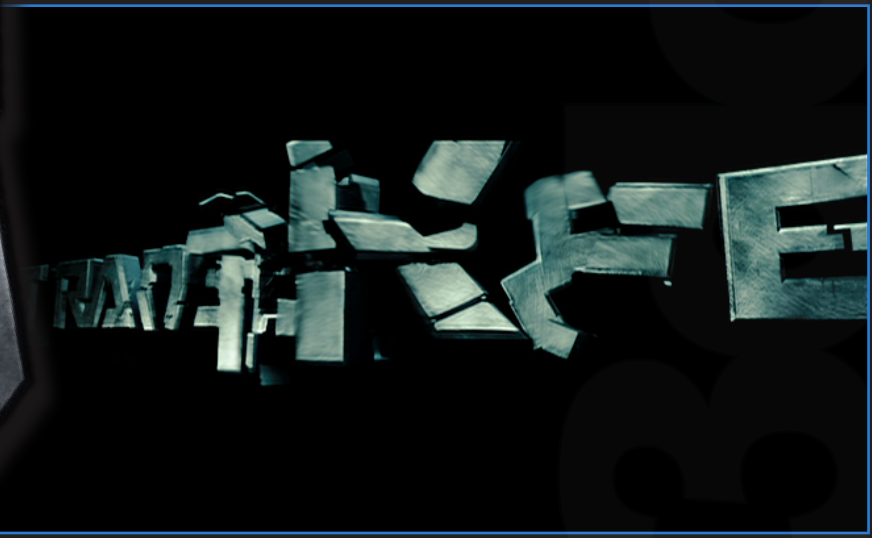
Koriakin said noted that IF had previously worked with With A Twist on a commercial campaign for Pontiac and had confidence in their ability to deliver photo-real CG elements quickly. “We knew that they could render metal textures,” he recalled. “We had references for them, but they had to create a lot of the textures themselves. The results were very believeable, very real. The stuff they did was amazing.”

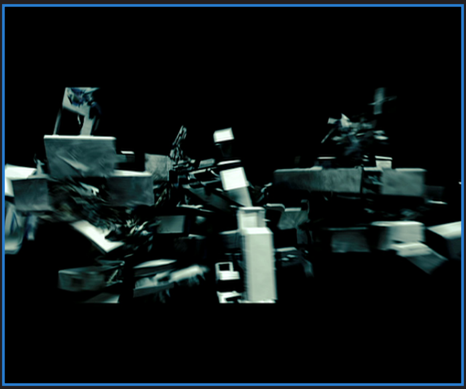


The amount of detail involved in the title was staggering. “There were thousands of individual objects in each scene,” recalled Brandon Bartlett, Project Leader for With A Twist. “Each layer was made up of multiple panels and there were mechanical elements, such as small, hydraulic arms, in each letter that were involved in the intricate construction process.”

The project involved several unique technical







hurdles. One challenge arose out of the difference between the software used by IF (Maya) and the software employed by With A Twist (3D Studio Max). "Typically, we would use an FBX plug-in to import Maya files, but in this instance, the animation was far too large and complex," explained Burton. "Instead, we created our own translation pipeline to convert the Maya files to a Max format."

Additionally, the project was complicated by an exceedingly tight schedule. With A Twist had less than two weeks to complete its task, including rendering the animation in 2K. "Although the deadline was fixed, the project kept getting bigger and bigger," recalled Burton. "The more our client saw, the more they liked it—and they wanted to see even more. Over a weekend, the scale of the project increased by a third—and it was great. The additions were awesome!" Serendipitously, With A Twist delivered the final elements for the trailer on the day that marked the first anniversary of its founding. "We were popping champagne for a lot of reasons on that day," Burton noted. "Getting back into feature films was one of the one goals we set for ourselves."With A Twist Studio is located at 1773 Star Batt Drive, Rochester Hills, Michigan 48309. For more information, call (248) 844-0044 or visit www.withatwiststudio.com.

FOR ADDITIONAL INFORMATION,

contact: Linda Rosner
Artisans Public Relations
(310) 837-6008
lrosner@artisanspr.com

Credits

WITH A TWIST STUDIO

Pam Hammarlund, VFX Producer; David Burton, VFX Supervisor; Brandon Bartlett, Project Leader; Matt Hammarlund, Paul LaFond, Matt Nowacki, Ryan Romans, Frank Synowicz and Jeff Tiensivu, CG Artists; Steve Stickel, Software Development; Bailey McFarlen, Render Wrangler.

IMAGINARY FORCES

Peter Frankfurt, Creative Director; Sean Koriakin, Art Director; Annabelle Richardson, Executive Producer; Ben Apley and Claudina Mercado, Producers;
Sean Koriakin, Ahmet Ahmet, Noah Olmsted and Ronnie Koff, Designers; Sean Koriakin, Brian Broussard, Robin Roepstorff and Hao Cui, Animators; Rod Basham and Matt Spencer, Inferno Artists; Courtney Graham Coordinator.

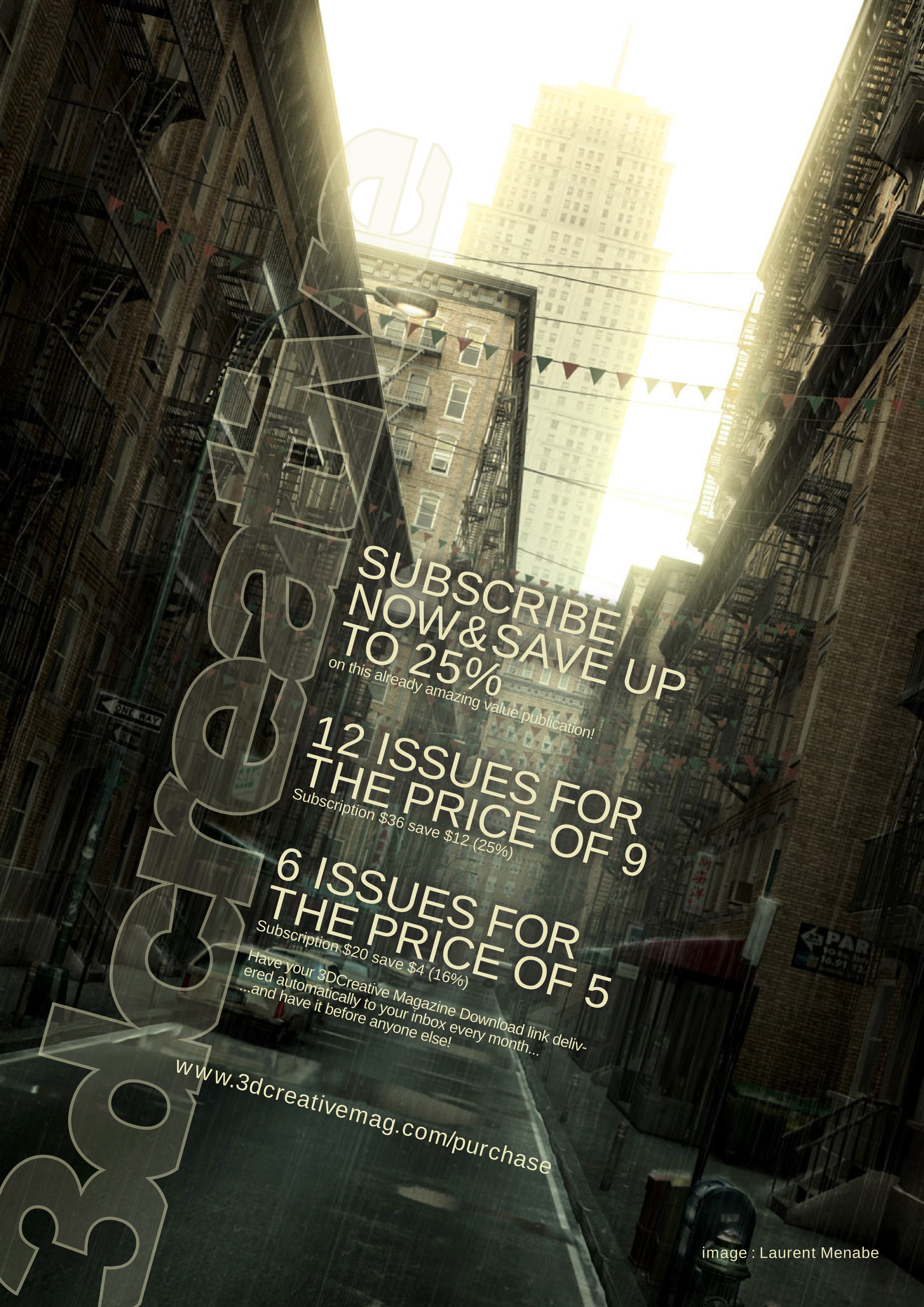


image : Laurent Menabe

part 2

the Science of Colour

In the second part of the colour tutorial series, I will continue to take you through some other important concepts in the science of colour. Due to the nature of the subject and the relationship between art and science, I only hope to cover the most essential aspects of you as digital artists. However, a further study is always strongly recommended.

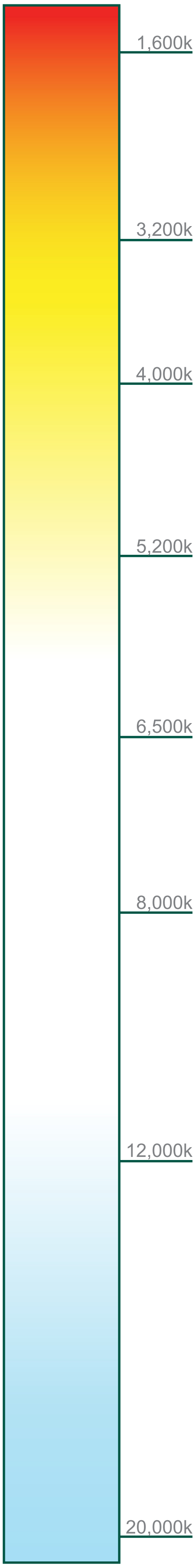
Colour Temperature: Blackbody Radiator

To be able to understand colour temperature, we need to look the most important light sources known to us - blackbody radiators - a term which was introduced by Gustav Kerchoff in 1862. Any object that fully absorbs the electromagnetic radiation that falls on it, is called a ‘Blackbody’. Blackbodies radiate every possible wavelength of energy & are directly related to their temperature. Anything, including those not in radiative equilibrium such as human bodies, below 426.85 0C or 700K only produces an amount of radiation in the infrared region which is invisible to humans. When producing enough radiation, blackbodies will have their starting visibility at red (lowest energy – longest wavelength) & going through orange and yellow; and as the temperature increases they turn white (flat in the visible spectrum) and end up at blue (highest energy – shortest wavelength). The most familiar blackbodies to us are the Sun and stars such as the Moon. They are nearly perfect blackbody radiators because they self-illuminate by emitting the heat which their atoms absorb from the furnaces in the stars’ cores, and are not lit by others. Other everyday blackbodies include light bulbs and toasters, etc.

Colour Temperature: Colour of White Light

Colour Temperature, not to be confused with thermal temperature, is a concept to characterize the spectral properties of visible lights by matching objects’ hues with a heated black-body radiator. Colour temperature is measured in Degree Kelvin (K) that starts at an “absolute zero” (-273 0C). (Fig 01). (Note: this diagram is for illustration purposes, and has not been done with any colorimetrically accurate calculation)

These are a few common examples:



1750K
Match Flame

2000K - 3000K
Sunrise or Sunset

2800K
Household tungsten lamp

3200K
Fluorescent light, studio lamps, photofloods

5000K
Daylight. Professionals in photographic and graphic art know it as standard D50.

5500K-6500K
Daylight in an overcast condition - Sun clouds

8000K
Hazy Sky/ Outdoor shade areas

18000K-20000K
Deep Blue Sky

At this point, you may be starting to realise something contradictory in this concept. Colour temperature says that red is a cooler colour, while blue appears to be the hotter. This is just totally against the everyday agreement towards human feeling of red as a hot colour and blue as a cold one. This is because red is the 'coolest' colour in the visible spectrum as shown in Kelvin's experiment with block of carbon and increasing heat. The block started as red and changed its colour as shown in fig 01. Ending up with a blue-white glow at the highest temperature.

CORRELATED COLOUR TEMPERATURE

Correlated colour temperature (CCT) is a more precise term by purists for those most omissive light sources. Those that do not emit radiation in the form a black-body curve, such as filtered daylight (Sunlight + Sky), fluorescent lights (sodium lamps that are fluorescent coated inside), TV and computer monitors.

COLOUR RENDERING INDEX (CRI)

CRI, is a method for reproducing the colour appearance of objects lit by light sources, it has been devised by the International Commission on Illumination (CIE). Incandescent light, which is almost a blackbody radiator has CRI of nearly 100, while low-pressure sodium vapour lamp has CRI close to zero (thus chosen for street lighting).

WHITE BALANCE AND THE APPLICATION OF COLOUR TEMPERATURE

Colour Temperature would seem to be redundant if it did not play a very important role in the graphic arts industry. It is used for controlling TV set and Video Monitor Colour Balance. Most home CRT (Cathode ray tube) TV sets have a colour temperature that is close to 6500K to create "white". This standard is

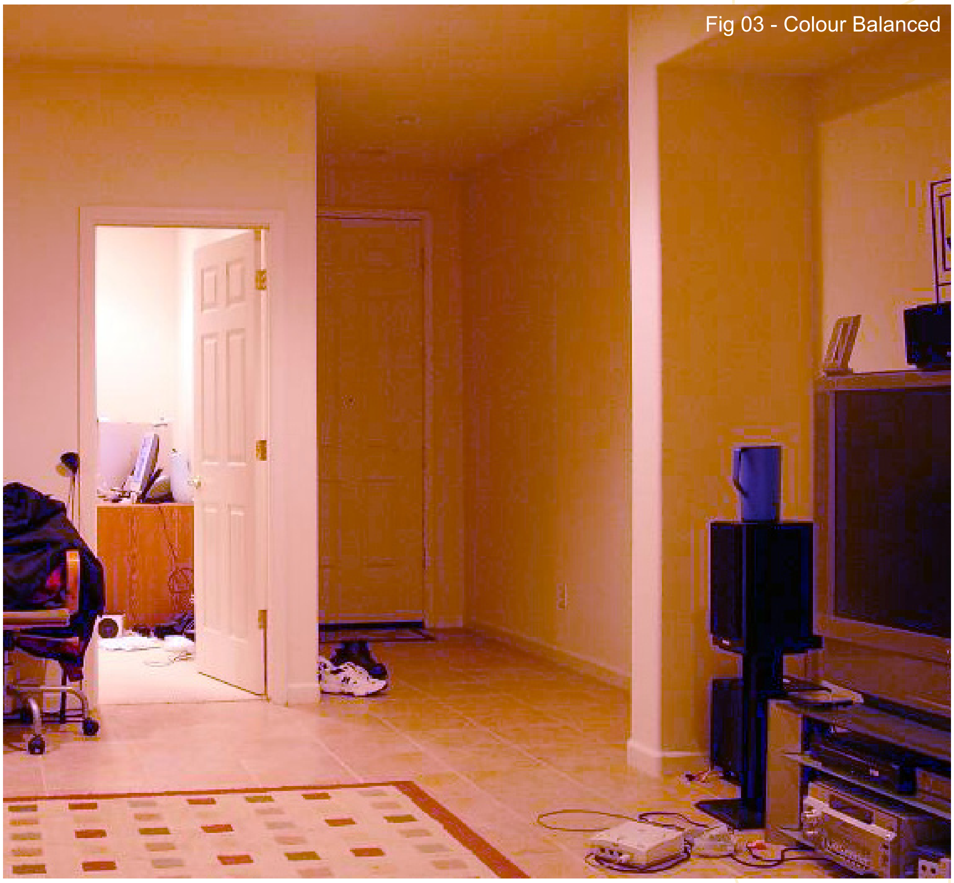


Fig 03 - Colour Balanced

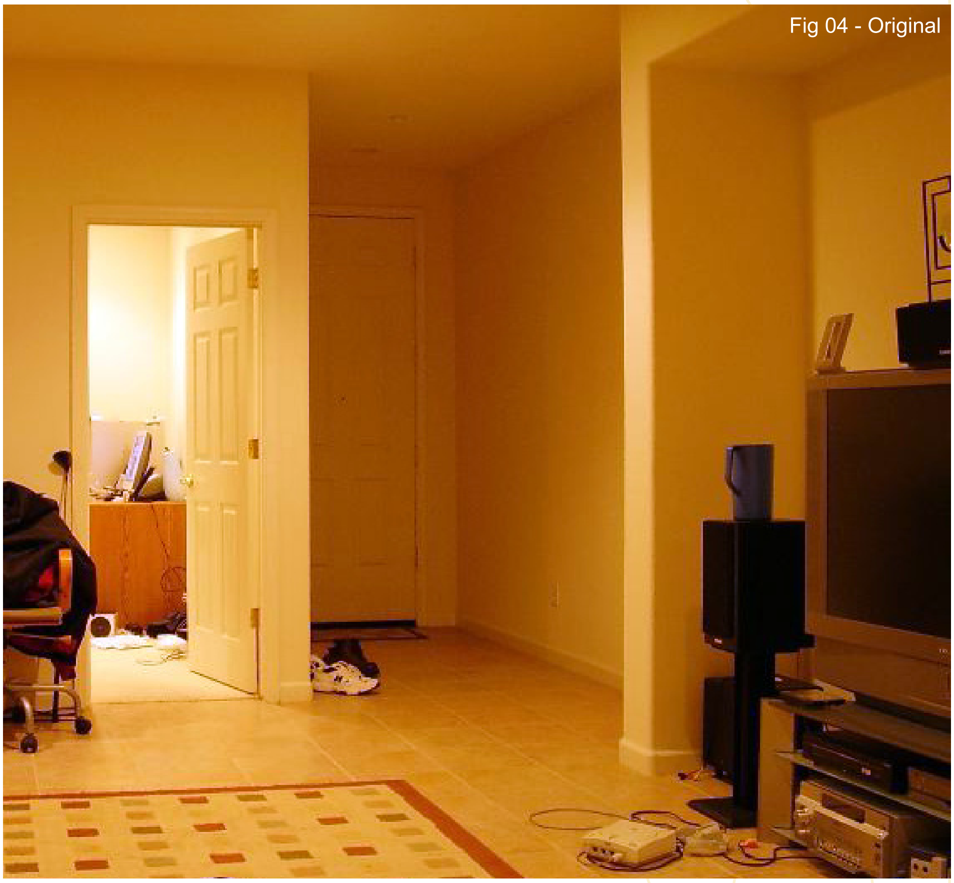


Fig 04 - Original

not a must-follow and adjusted depending on the consumer desire for colour quality. This varies even greater for newly-developed LCD and plasma TV's. In photography, sometimes, what is seen by the naked eye can turn out to be yellowish or bluish in a photograph because of the exaggeration of the colour of the light in film. This is when Colour Temperature can help to correct colour balances to achieve a neutral colour print. By matching the colour sensitivity of the film to the colour temperature of the light source for example, shooting under yellowish-orange tungsten incandescent lights needs tungsten film to get the" white" – 3400K in the photograph. Filters on camera lenses (colour gels) may be used for shooting in situations where the colour temperature of the light sources and the spot of the camera are much different. Such as shooting a deep blue sky in window light. (Fig 03 & 04). Colour Temperature is also widely used in Desktop publishing by those who create digital artworks for print. It is essential to know the colour temperature of the monitor you work with and adjust it so that the screen colour will match with the printed colour. The common ones to follow are D65 (6500K) and D50 (5000K).

MEASURING COLOUR:
METAMERISM AND COLOUR CONSTANCY

Metamerism, an error in human vision, is a phenomenon where two different colour samples with similar spectral characteristics produce the same colour sensation. It happens when both events – light sources and observers – come into play because the way the eye divides incoming spectral into the three cone responses. Metamerism presents more of an advantage than error. It helps control colour for different design purposes under certain lighting. It also makes accurate colour reproduction possible. Millions of colours can be reproduced on screen and print with just 3 (RGB) and 4 (CMYK) colours. (Fig 05).

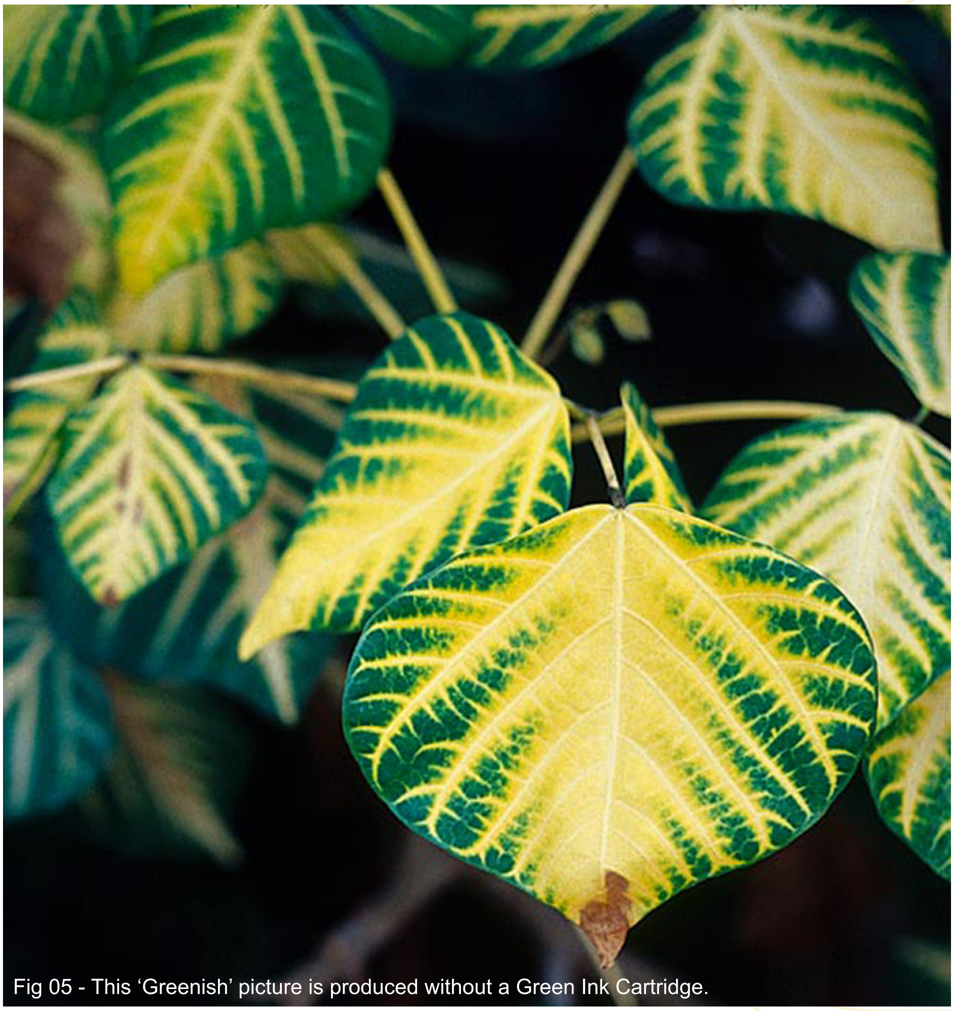
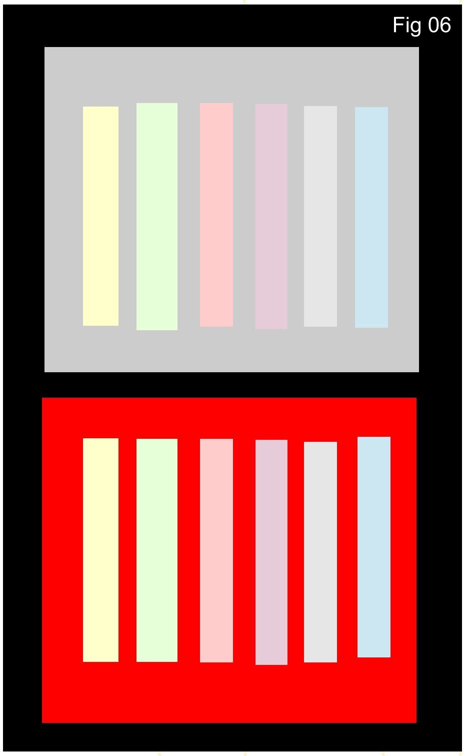


Fig 05 - This 'Greenish' picture is produced without a Green Ink Cartridge.

Colour constancy or "discounting the illuminant" is also an important feature of the human and animal visions that helps seeing one colour the same in different lighting conditions. Cameras do not change their response to environmental lighting that can turn a white dog standing in the shade a blue structure into a blue dog. Our Colour vision is clever enough to know that the dog is still white. Fig 06 demonstrates our ability to match the colour of the same strip in two different lighting environments.

Fig 06



MEASURING LIGHT

Colour only exists in the world of the observer and with our present technology, it is almost impossible to measure it precisely. The contemporary method is to measure the 'stimulus', photons or lights that reflect off the objects we see (such as the computer screen you are using to read this tutorial). These enter your eyes to produce the sensation of colour. Scientists use 3 major instruments: Densitometers, Colorimeters and Spectrophotometers to measure colour. In this tutorial, however, we only look at the last two due to their popularity. A 'Colorimeter' works by measuring light through filers, to figure out the colorimetric numbers that mimic the response of the cones in the observer's eyes. In reality, it only works where metamerism occurs and the observer sees a difference between two colour samples. Colorimeter is unable to measure colour constancy because it ignores the subject's surrounding colours while duplicating the tristimulus (The amounts of red, green, and blue needed to form any particular colour) response of the eyes

SPECTROPHOTOMETER

The way a Spectrophotometer functions is similar to Colorimeter (projecting light) but is based on the science of measuring spectral reflectance – the relationship between the each wavelength of light projected onto an object and the light of the same wavelength bounced back to the instrument's detector. Many generations of colour scientists have worked so hard - big thanks to them - to shape the understanding of human vision and model these sophisticated patterns numerically. In the following part of the series, we will take a look at these numerical models and colour reproduction in the world of the pixel.

RICHARD MINH LE

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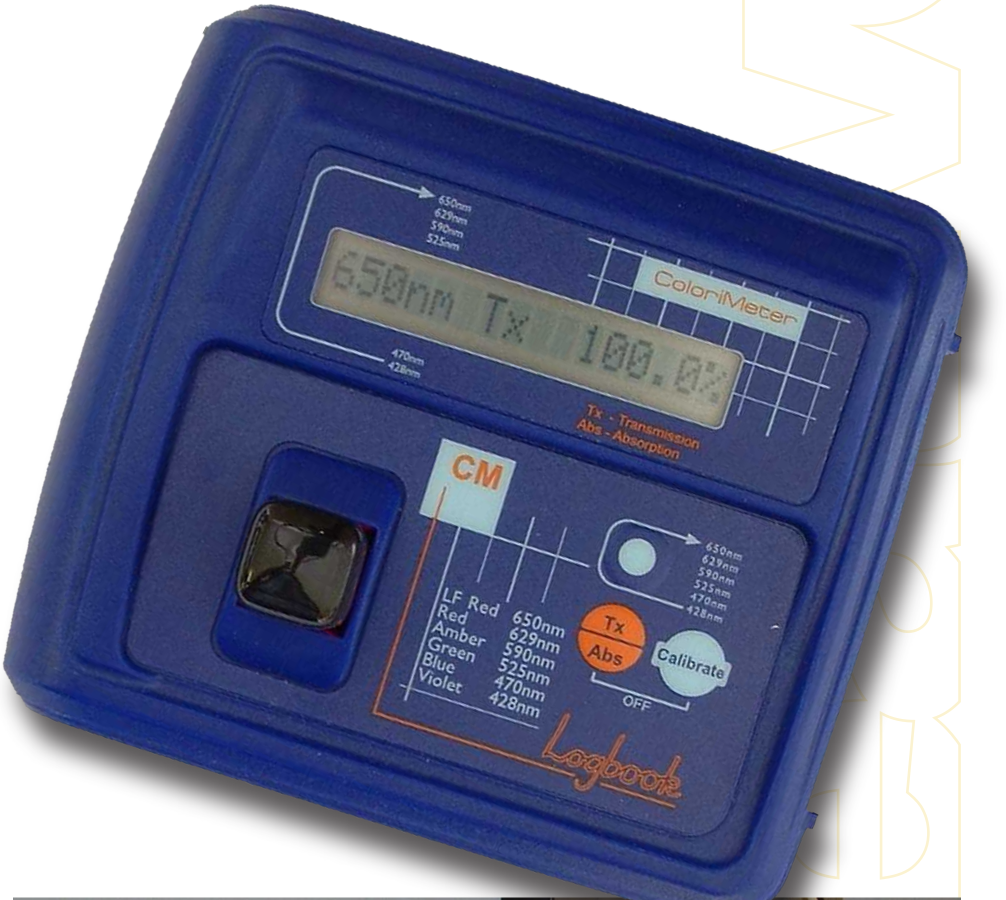
tradigital_le@yahoo.com.au



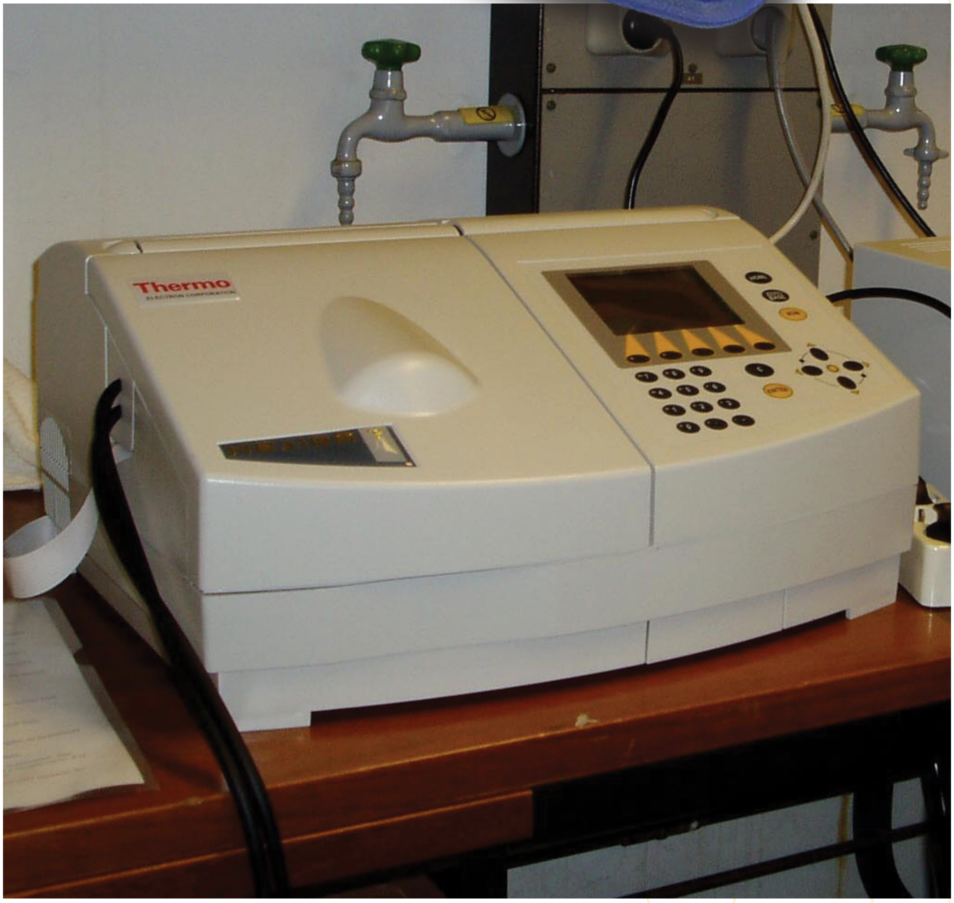
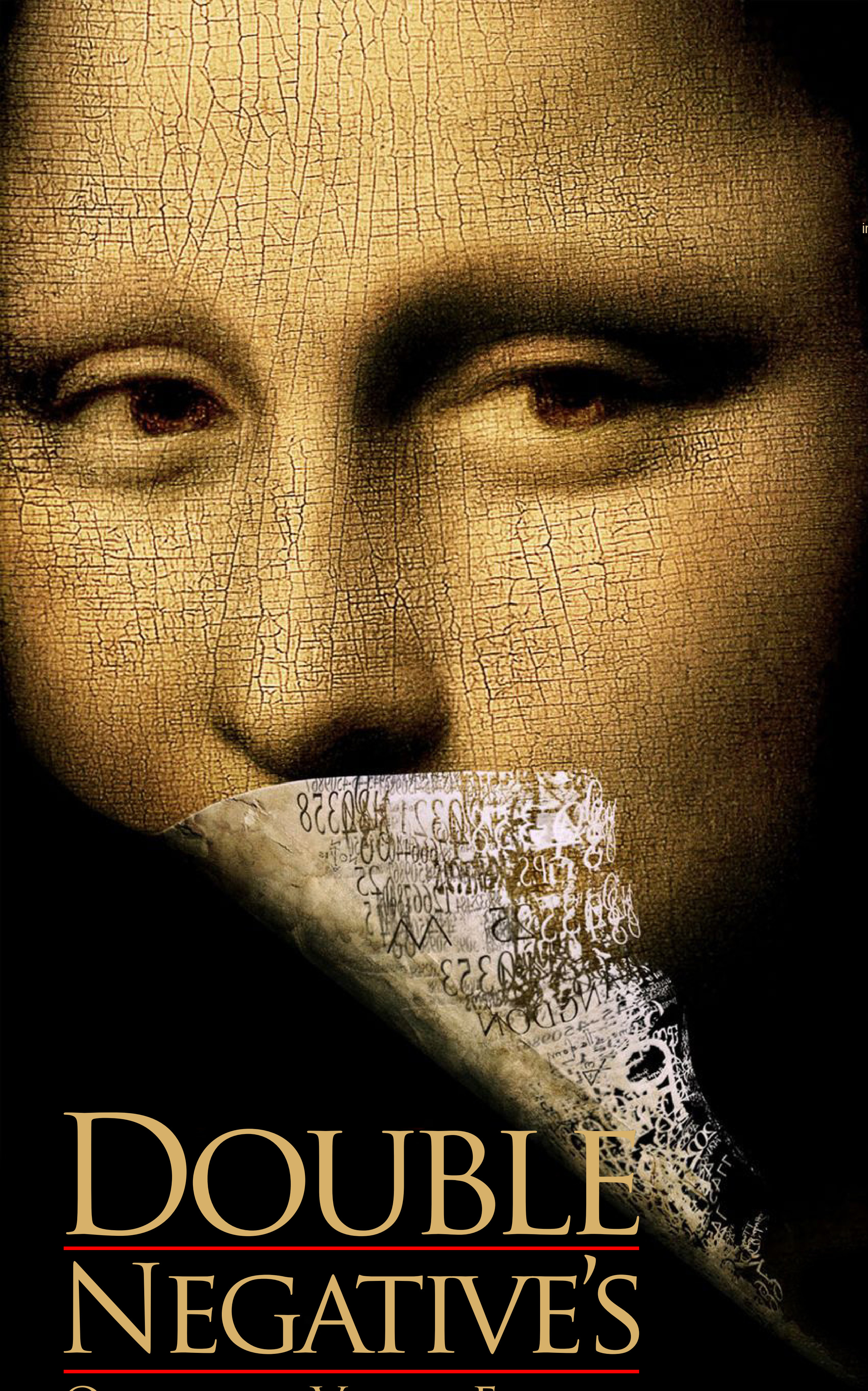


Fig 01

ZOO PUBLISHING
2d Artist
Concept Art, Digital & Matte Painting Magazine
Issue007 July 2006 $4 / €3.25 / £2.25
Interviews
Kornel Ravadits & Riana Miller
Tutorials
King Kong – Part 2 of 3, 'Fantasy Budapest' Matte Painting & Elements - Fur & Hair
Making Ofs
'Blue Dragon', 'Blue' & Digital Art Masters 'Breath'
Galleries
10 of the best 2D digital artworks
Plus
We take a look at...
a history of
matte painting
in movies



DOUBLE NEGATIVE'S

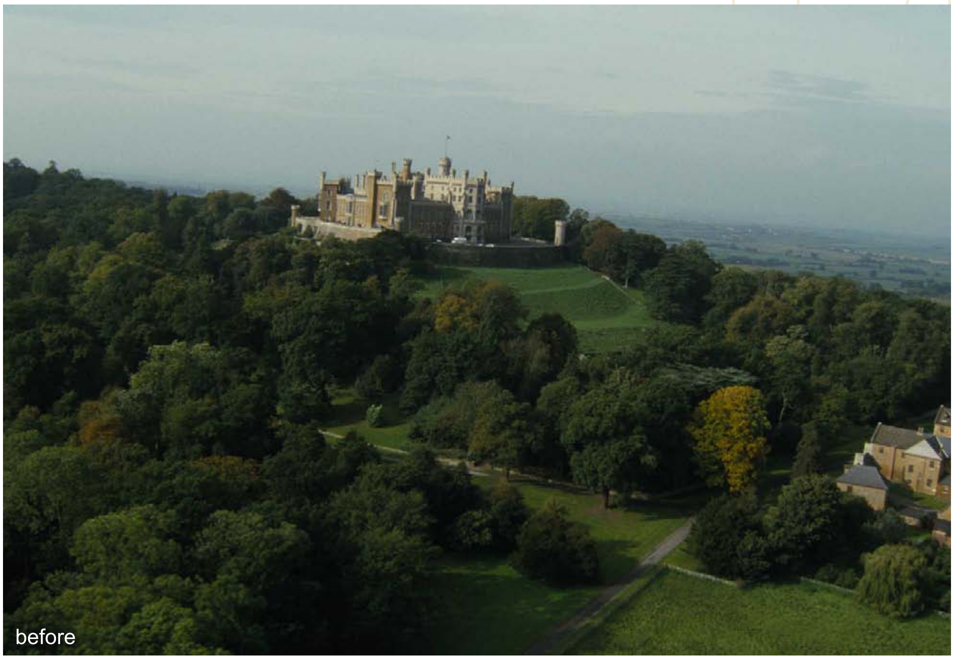
QUEST FOR VISUAL EFFECTS

Visual effects studio Double Negative turned to Autodesk technology in order to deliver stunning computer-generated imagery for the thriller The Da Vinci Code. From car crashes to elaborate tombs, Double Negative used Autodesk Maya 3D animation software to realise creative ideas for 80 of the film’s shots. We interviewed Steve Garrad, VFX Producer about the studios work...

THE DA VINCI CODE: DOUBLE NEGATIVE'S QUEST FOR VISUAL EFFECTS LED TO AUTODESK TECHNOLOGY

Steve Garrad, visual effects producer at London-based Double Negative, summarised the company's use of Autodesk Maya: "Double Negative worked on The Da Vinci Code for 10 months with Autodesk Maya software. The Maya software's 3D animation, modelling and rendering capabilities enabled us to pre-visualise and enhance scenes, as well as create entire scenes in the post-production process. Many of the shots we delivered would have been impossible to craft without Maya." Director Ron Howard's film is based on The Da Vinci Code novel by Dan Brown. The story follows the main characters – Robert Langdon (Tom Hanks) and Sophie Neveu (Audrey Tautou) – on their quest to discover a religious mystery. Double Negative's Garrad described one of the film's key shots, in which Silas the monk is driving: "The car in the first half of the shot was computer-generated and a real car was used for the second half of the shot. The computer-generated car matched the real car perfectly frame-by-frame. This was due to the talent of Lead CG Artist James Benson here at Double Negative, as well as Autodesk Maya software."

In addition, Maya helped depict the main characters' memories. Robert Langdon has an extraordinarily detailed and vivid recollection of past events. As well, Sophie Neveu has a horrific memory of her parents dying in a car accident. 3D elements were created in Maya and added to 2D imagery to create a shocking visualisation of this memory. Jesper Kjolsrud,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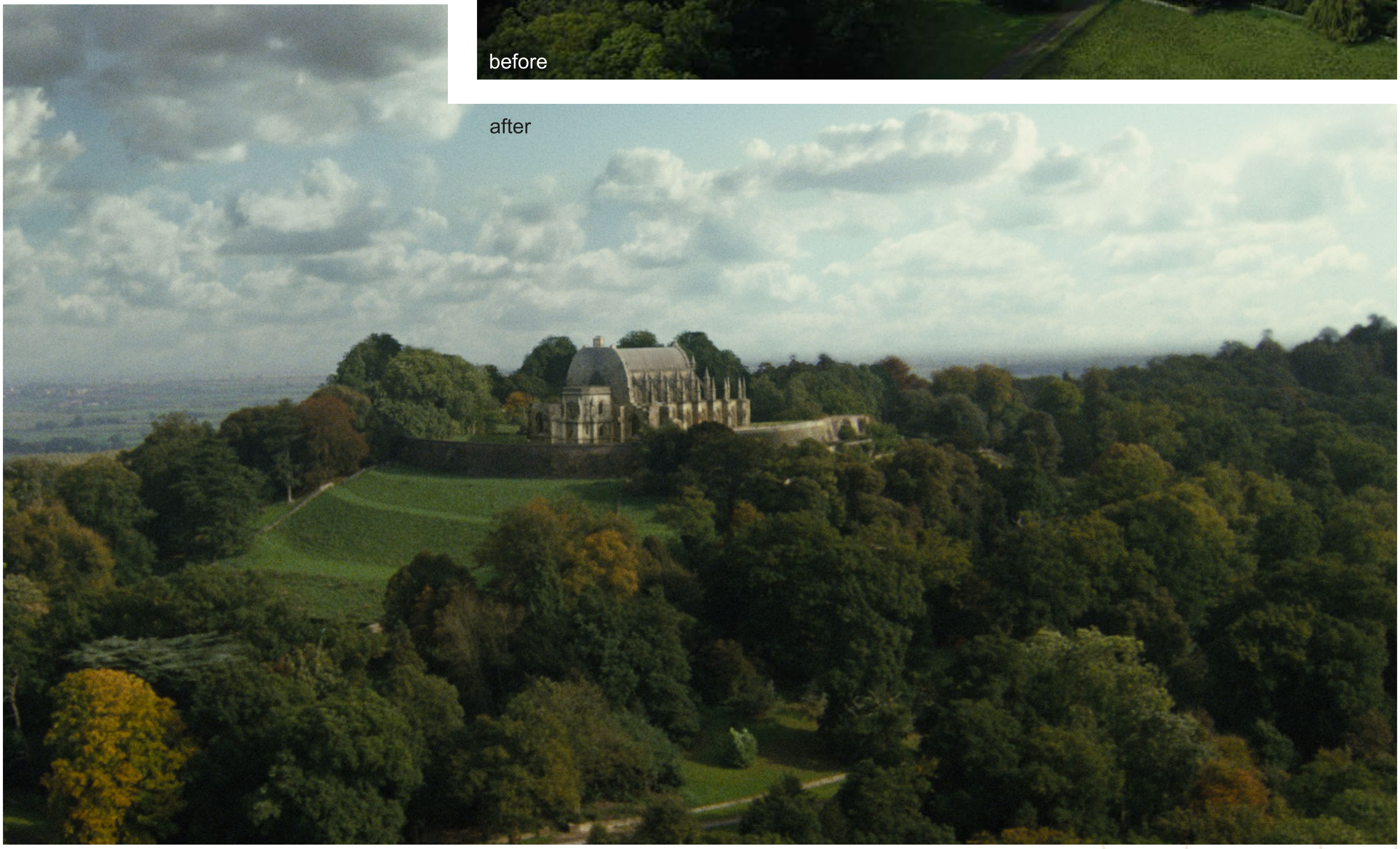
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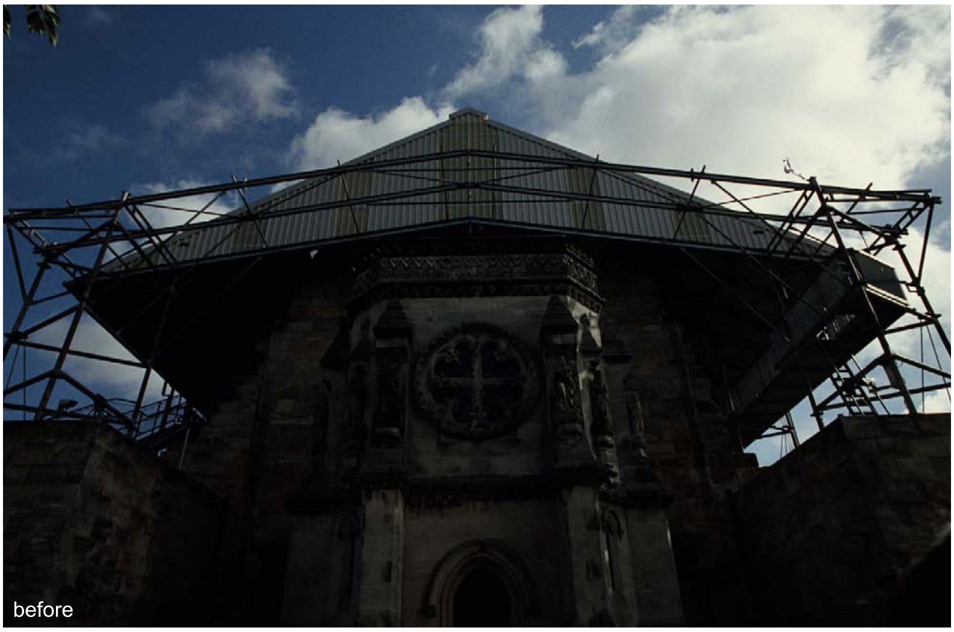
CG supervisor at Double Negative, discussed the role of Maya as a pre-visualisation tool: "In The Da Vinci Code, the reveal of Mary's sarcophagus is a good example where Autodesk Maya became the backbone of a shot. The shot was first pre-visualised in Maya. Camera movement was then programmed onto a motion control green screen plate of the sarcophagus, using Maya. Maya was also used to pre-visualise the Newton's tomb sequence." Double Negative is currently using Autodesk Maya on a number of projects, including Harry Potter and the Order of the Phoenix, The Reaping, 10,000 BC, Stardust, Children of Men, Penelope and The Magic Flute.

STEVE GARRAD, VFX PRODUCER OF THE DA VINCI CODE:

What was the main reason for using CG for the effects in the movie, as opposed to matte paintings or set construction?

There wasn't a choice, per se, made determining that certain effects had to be created using CG, it was always a collaborative choice with the VFX supervisor – Angus Bickerton as to what methodology would give the best looking results. But saying that, out of the 140 shots that made it into the final edit, 80 had CG elements in them. The shots of Roslyn chapel are a good example of the different styles of film-making that can be used, one shot was full CG composited onto a helicopter plate, another was a matte painting composite and Angus also had a 20 ft miniature built, which had a sky composited into it for continuity reasons.



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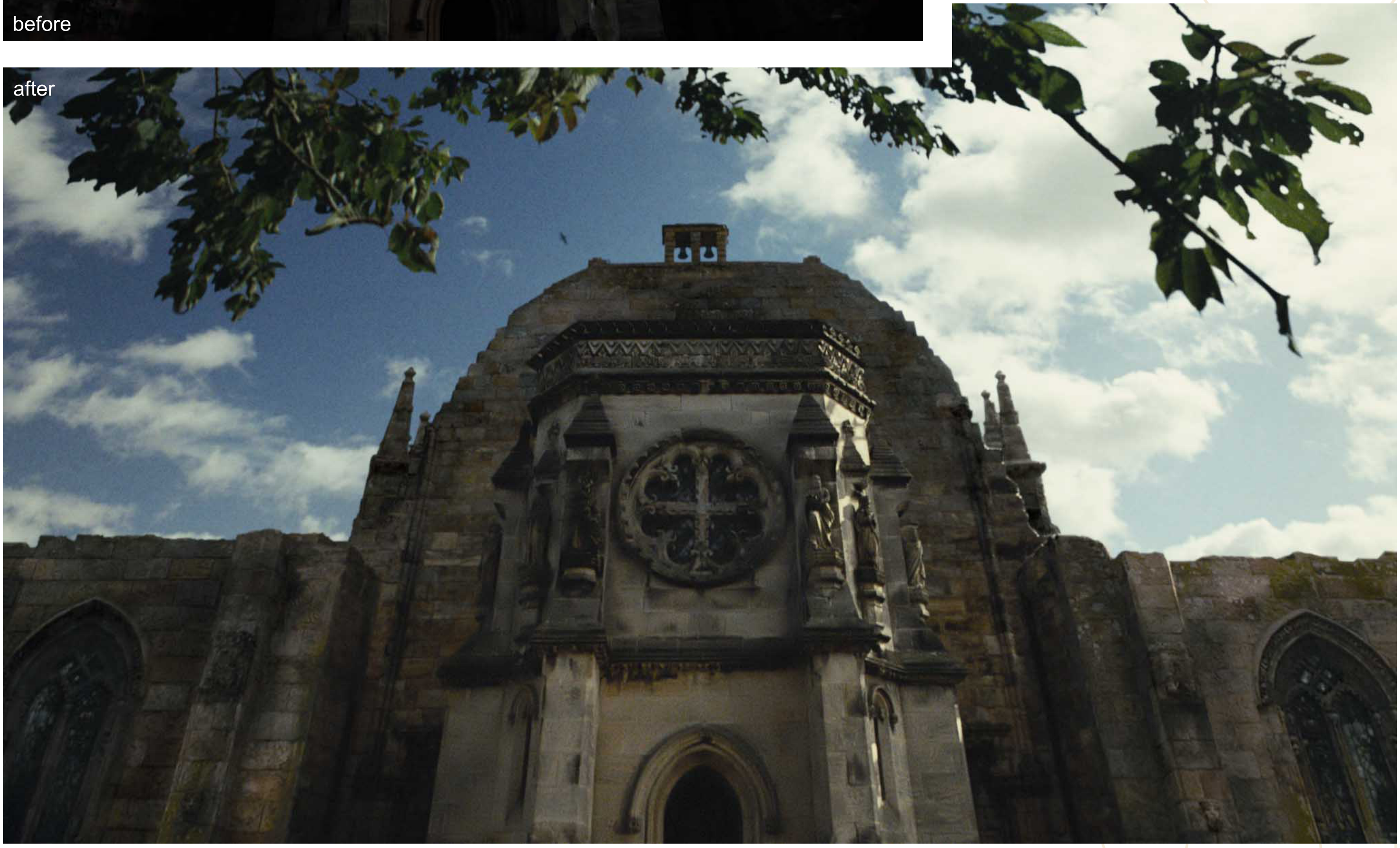

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After the book has been so thoroughly scrutinized, how important was it that these effects were totally believable?

This was the brief from day one … complete believability… relayed directly from Ron Howard. If at any time the viewers don't believe that they are not looking at an actual place, the reality is broken. This filtered through all of our work, so even though a camera cannot pull out from a car to see it drive off in the distance, you never want the audience to think about that, i.e. the CG and composite have to have a sense of verisimilitude that is total.

It is obvious why Roslyn Chapel was in need of some touching up (scaffolding etc) but why was Belvoir castle given the same treatment?

Belvoir castle was in fact a stand in for Castle Gandolfo, which is the pope's private residence. Getting any reference for the real Castle Gandolfo was hard enough, so the chances of filming there were impossible. In fact one of the helicopter plates of Belvoir castle was reused for a CG Roslyn chapel shot.

Visualising Langdon's thought process must have been one of the harder tasks; do you think that they were communicated well using the CG overlays?

These sequences are the kind of creative work that Double Negative thrives on; they were also the first to be started and the last to be delivered! We previsualised these shots and oversaw the motion control shoot with Angus. Then once the editors had the sequence in place, we started to work together on the look, how opaque should the tomb be, how it should fade up etc. In the end, working in collaboration with Angus and Ron, we created the stylised chromatic aberration design, all created in Shake, so that the colour became translucent and refracted on the periphery of Langdon's vision. By doing this effect we were able to help the filmmakers make the point that Langdon is working through his ideas in his head to get to the solution. An apple (the 'fleshy orb' that Langdon is looking for) was filmed as an element but never used as it was deemed to be too obvious. And does it work well … that's not for me to say, although accompanied by Hans Zimmer's fantastic score; I thought the sequence has a real sense of grandeur and wonder.

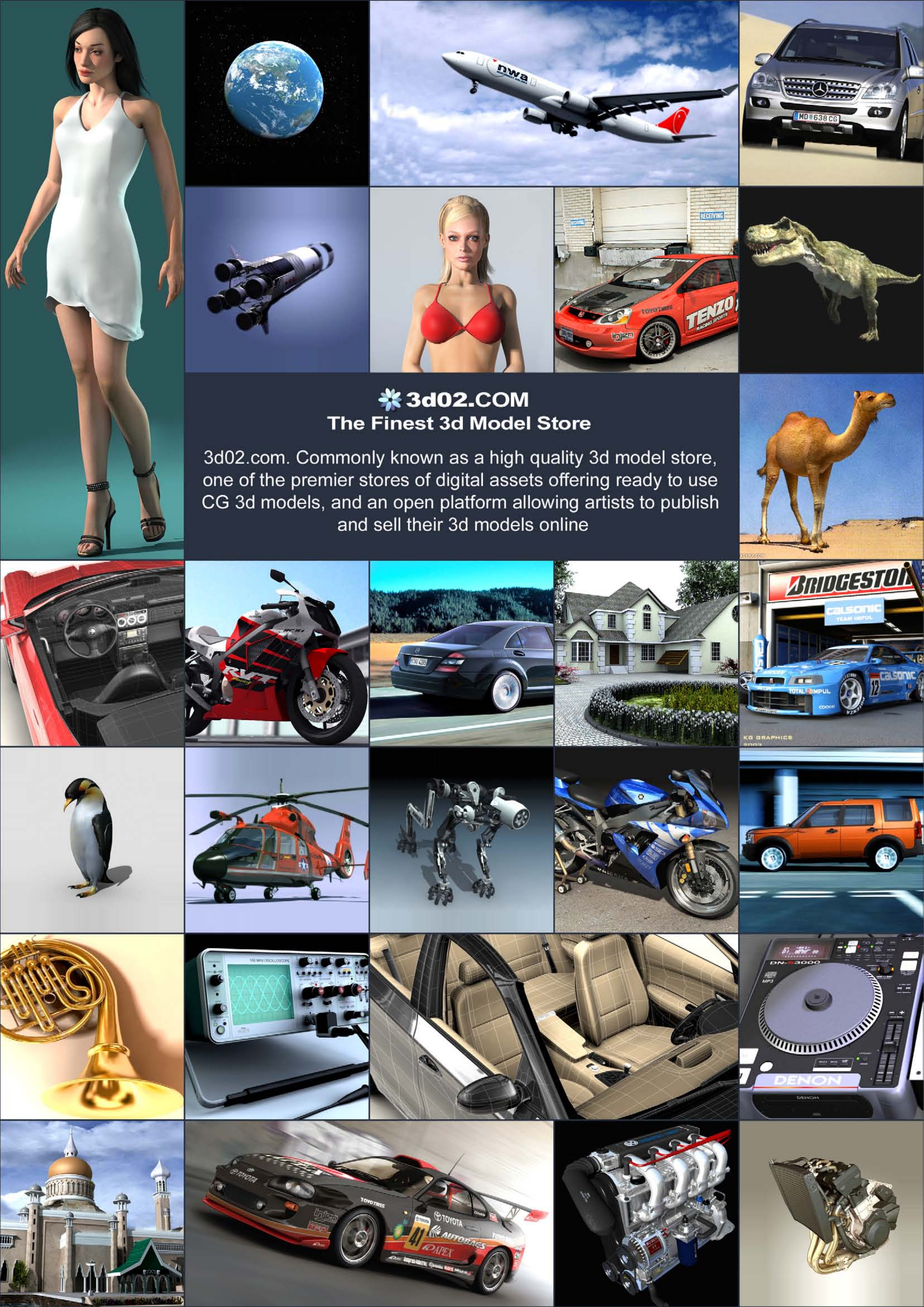
I'll be honest; I had no idea that some of the car crash frames were CG!

I'll be honest and say that most of the car crash frames weren't CG! We only augmented them by adding more splintering glass and extending the end of the lorry. All of those shots were physical stunts, that we composited together.

Thanks for talking to us Steve.

Ben Barnes

For more info please visit www.autodesk.com or contact kimw@rlyl.co.uk or rajd@rlyl.co.uk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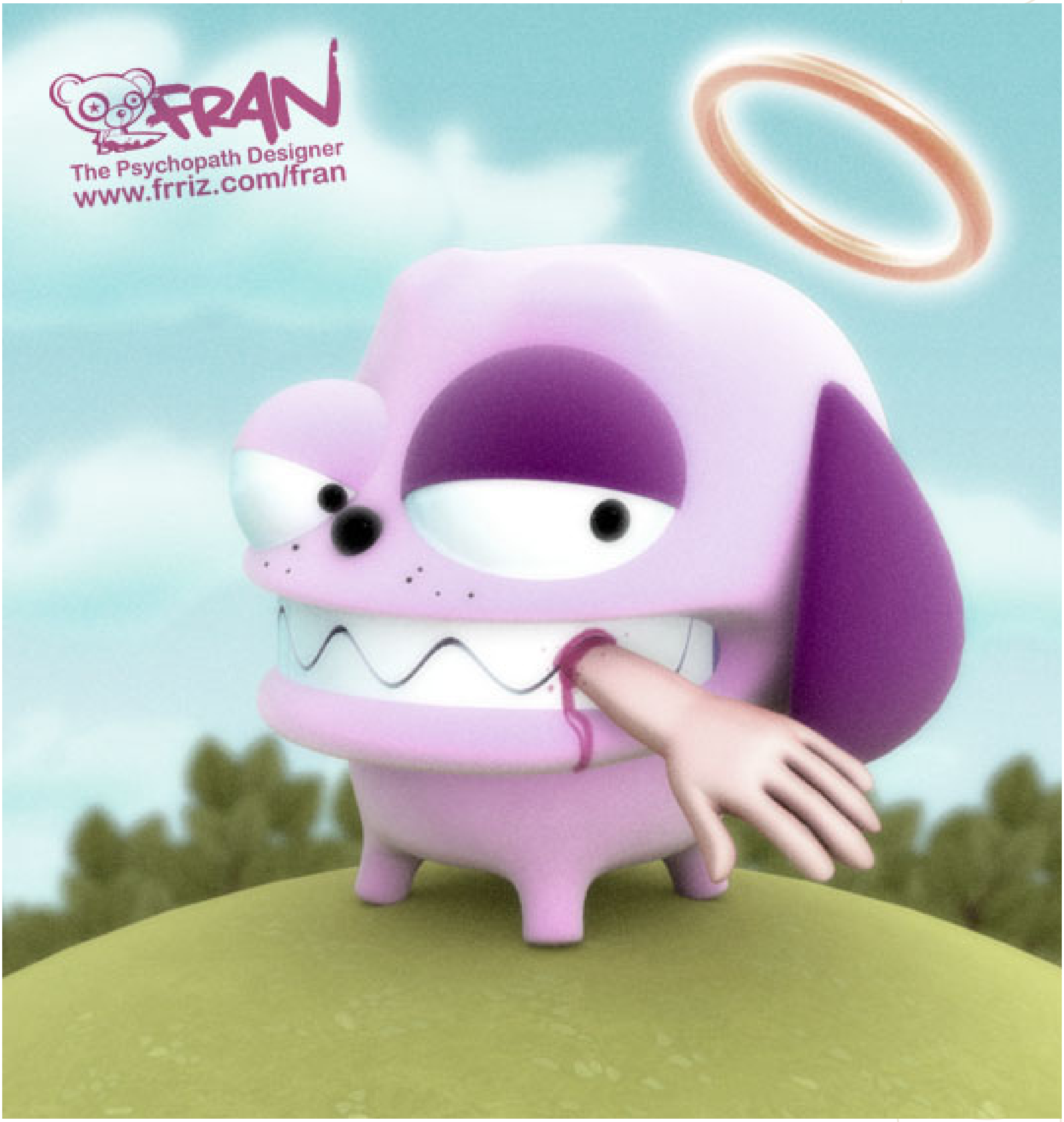

BEAUTIFUL DOG

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NO WAY OUT

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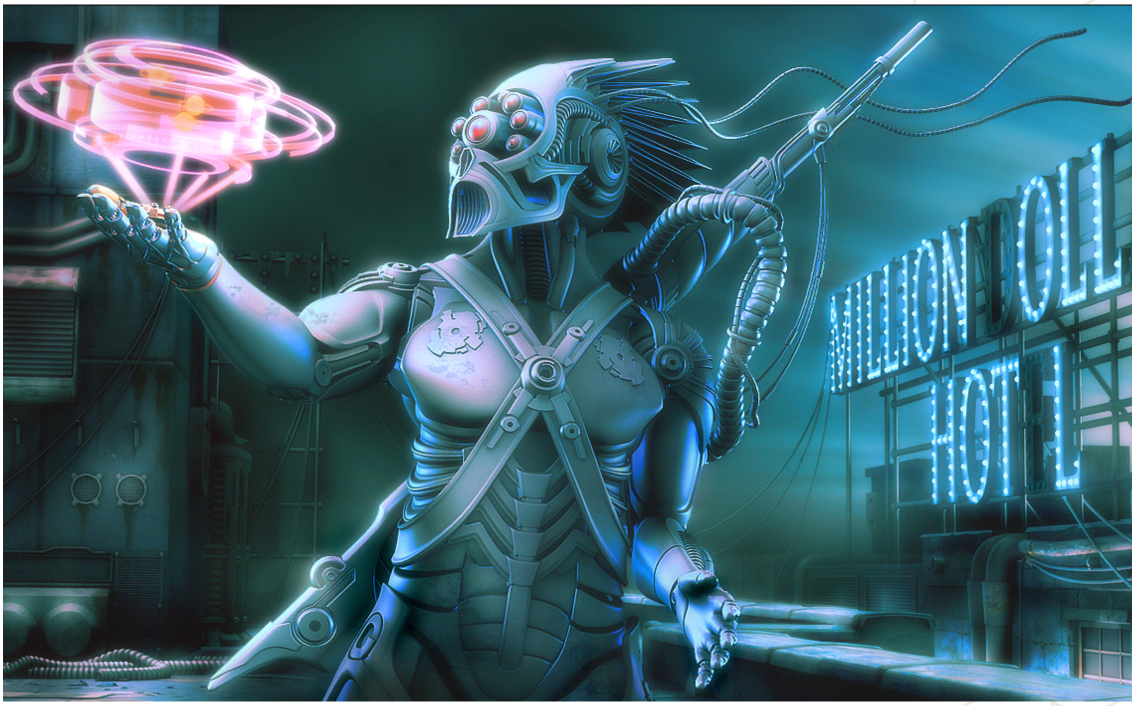

MAGIC FLUFF

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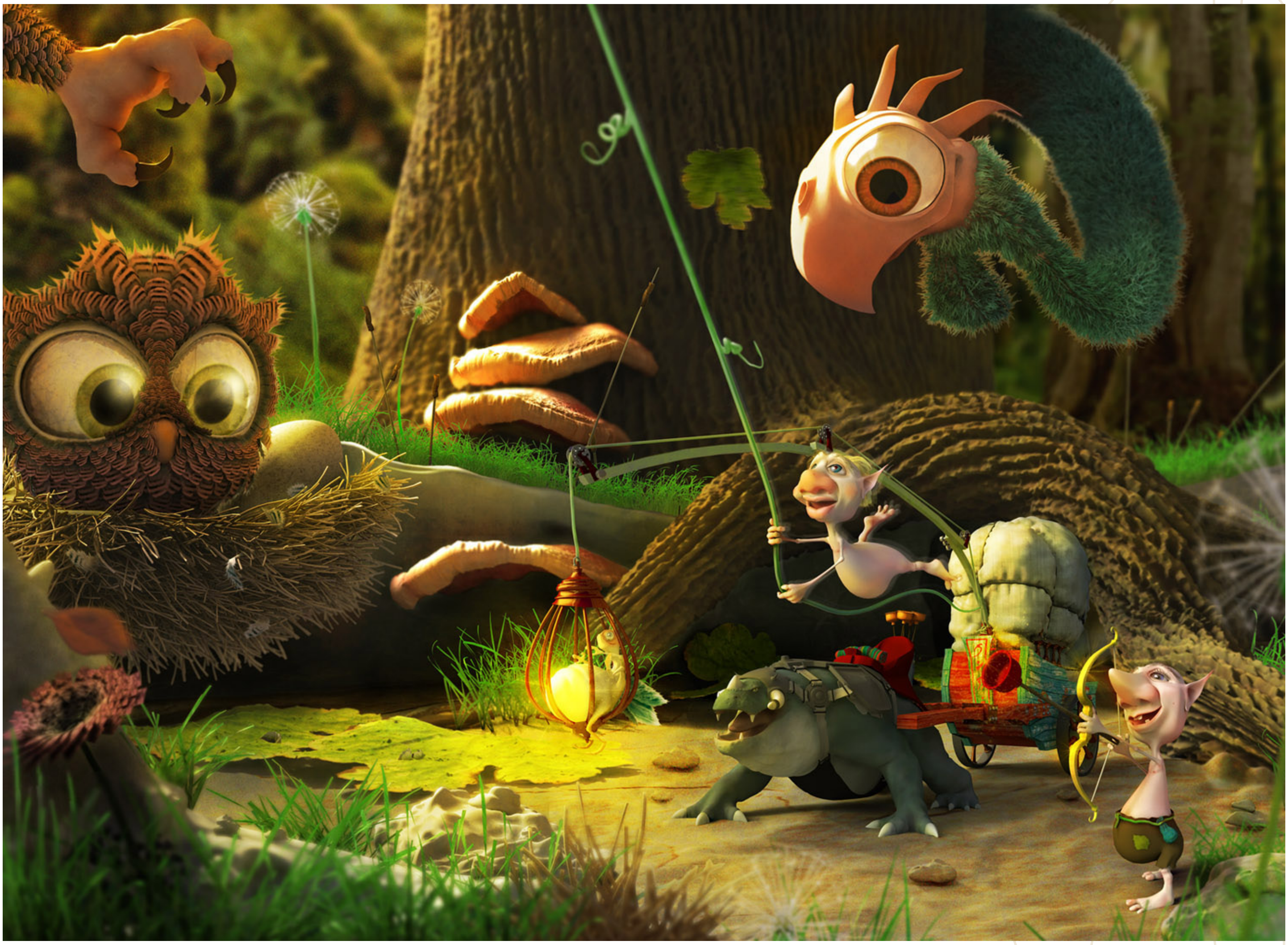

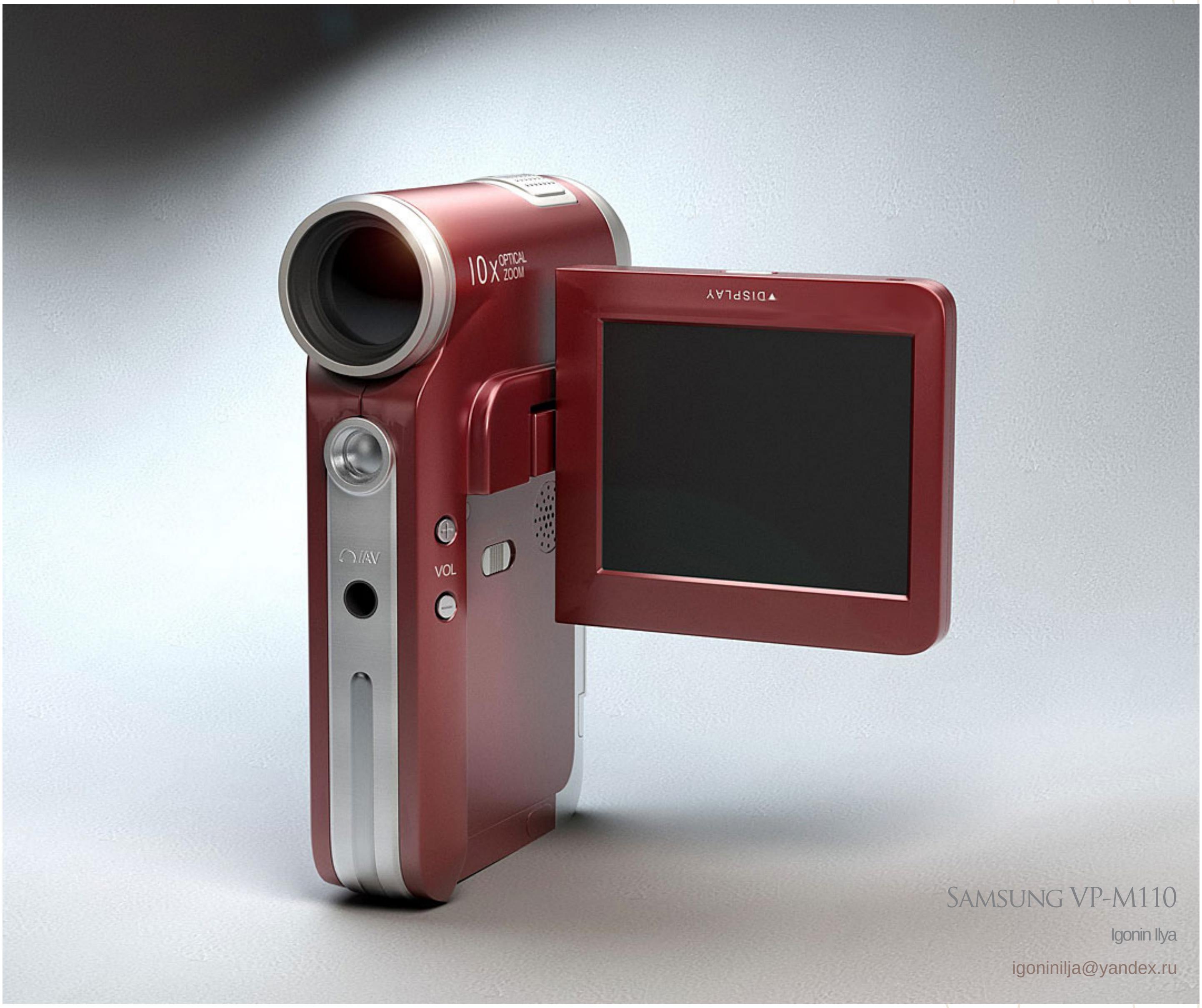

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WHITE TEETH

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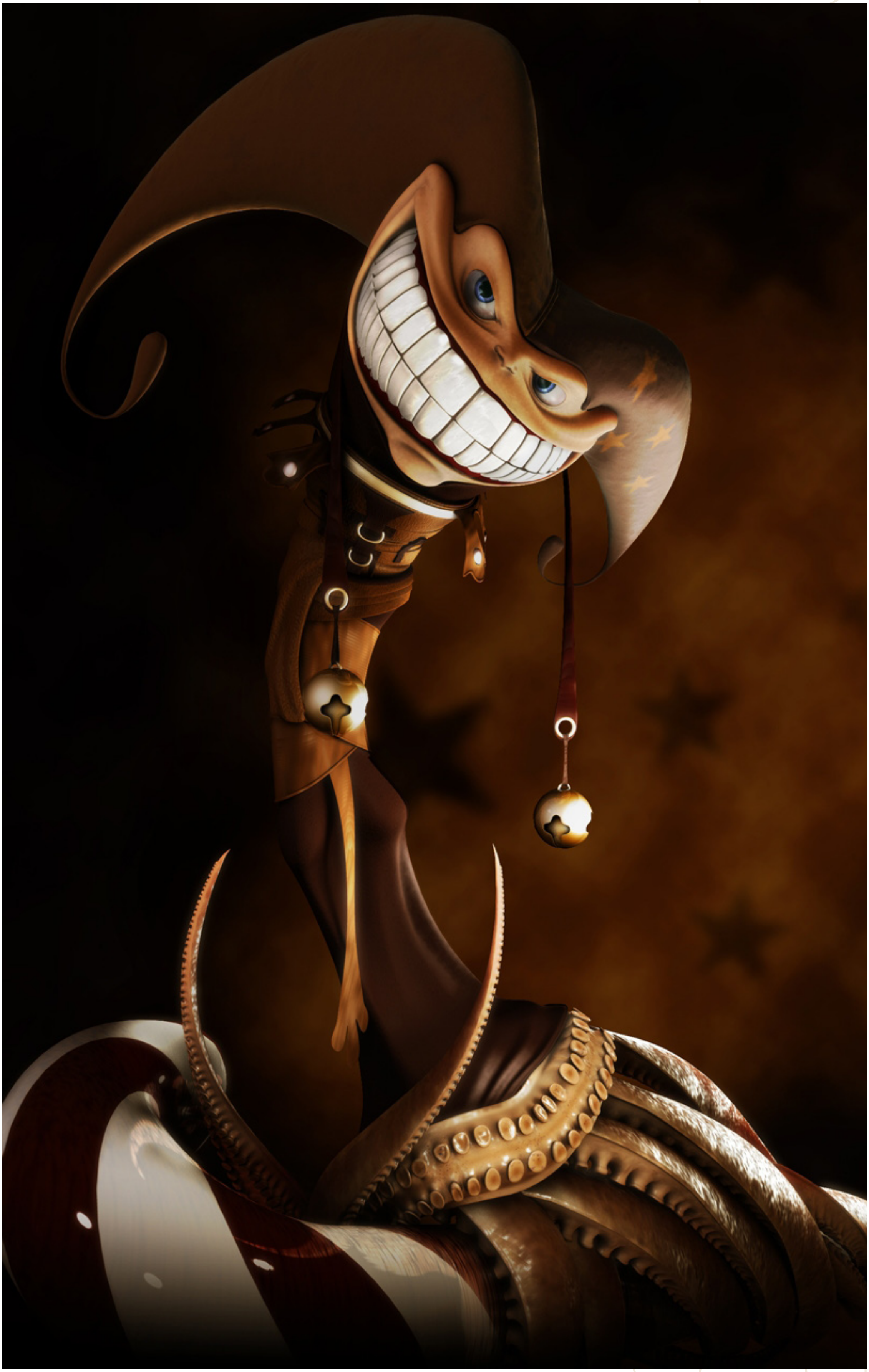

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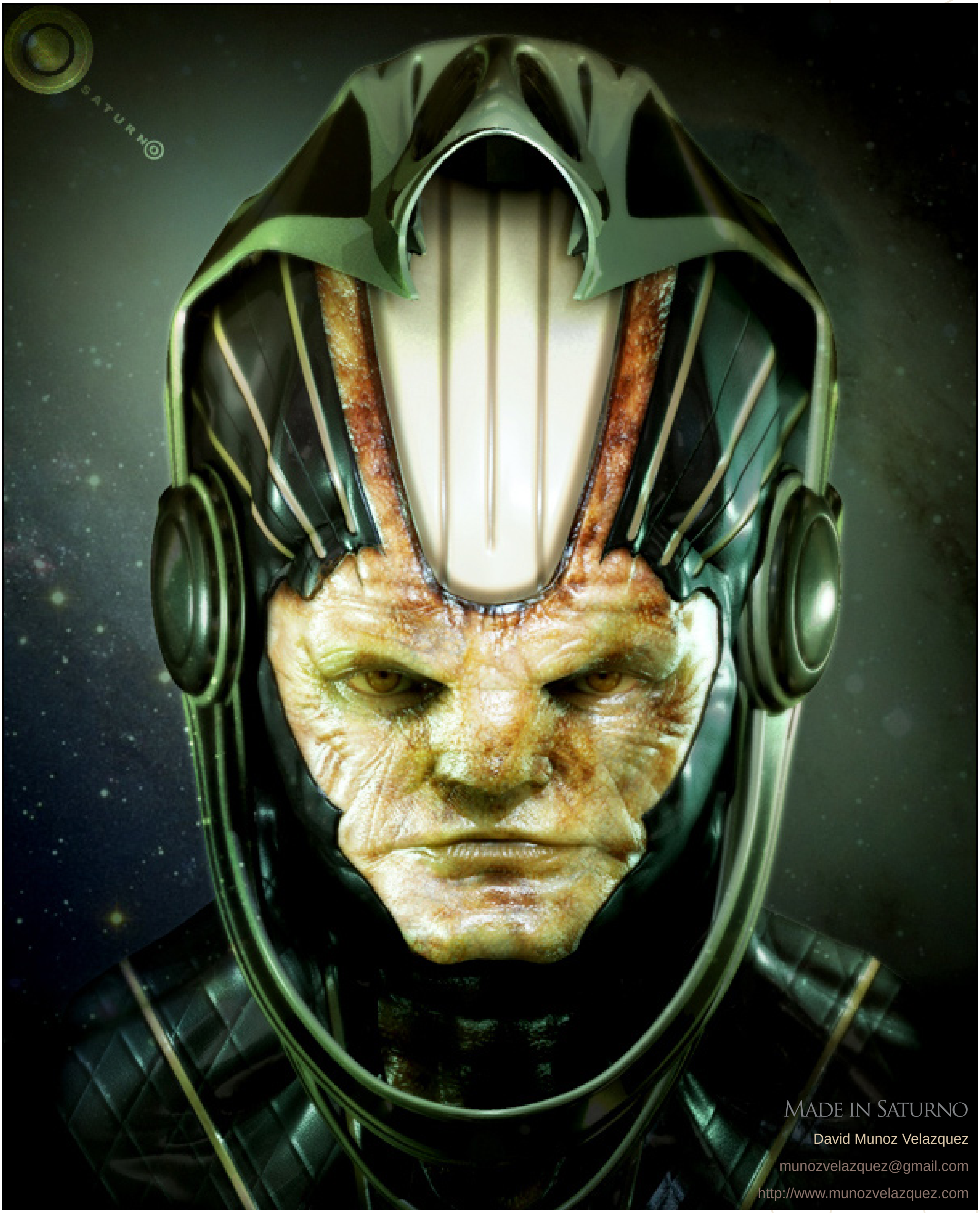

MADE IN SATURNO

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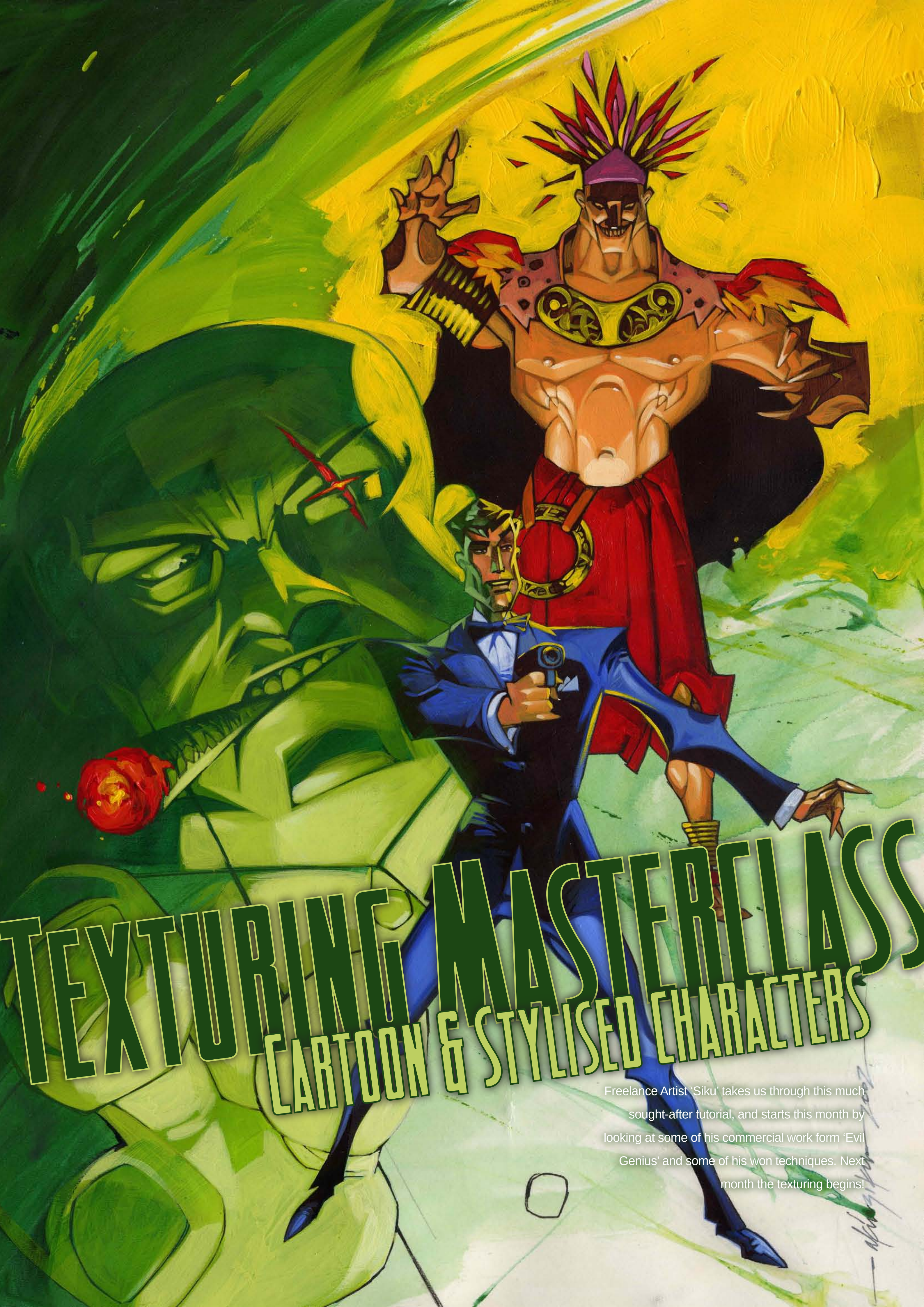

TEXTURING MASTERCLASS

CARTOON & STYLISED CHARACTERS

Freelance Artist ‘Siku’ takes us through this much sought-after tutorial, and starts this month by looking at some of his commercial work form ‘Evil Genius’ and some of his won techniques. Next month the texturing begins!

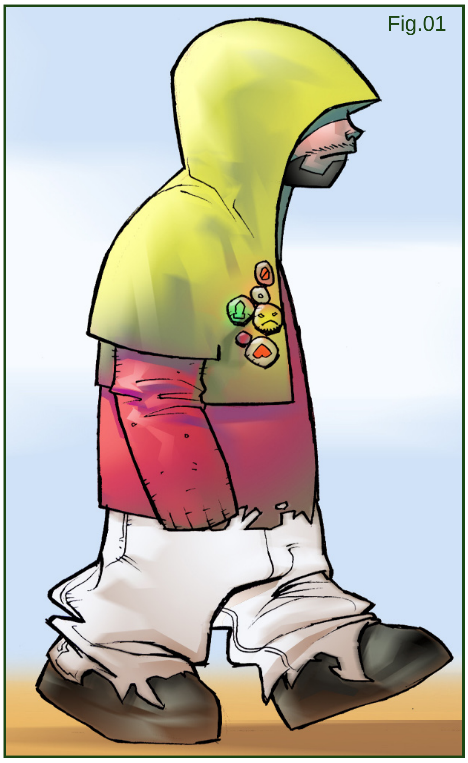

Fig.01

TEXTURING CARTOON AND STYLISED CHARACTERS.

I painted this illustration (fig.01) without the aid of freehand airbrushing. Masks and motion blur Photoshop tools were used, demonstrating the usefulness of unconventional texturing. The texturing conventions observed in games development relate largely to naturalistic needs. For low poly models, the need for textures that facilitate 3D illusion is obvious. Dirt, Grain and Rust detail serves to imply realism. In the absence of dynamic lighting, hyper-realistic texturing methods provide mood, space, substance and form for objects and environments. On the other hand, texturing for stylised characters and environments require novel solutions, from Toon shader plug-ins to customised texturing techniques. Customised texture methods are by definition unconventional in games development. Stylised assets do not have the same requirements as realistic assets; therefore, fulfilling the need to keep the stylisation consistent is more important than hyper-realistic requirements. Rules are therefore likely to be broken.

TEXTURING EVIL GENIUS CHARACTERS

Before we go through a tutorial on rules breakage, I think it best to examine a practical application in an actual developed game. Our test case is the PC strategy game, Evil Genius. Fig02 is a poster from final concepts of some characters from the game. For our test case, we chose the Polynesian native as a subject and textured him both traditionally and stylistically. Chris Dawson from Elixir Studios textured him conventionally while I began a search to find shading techniques compatible with the highly sculptured Art Deco form of the characters.

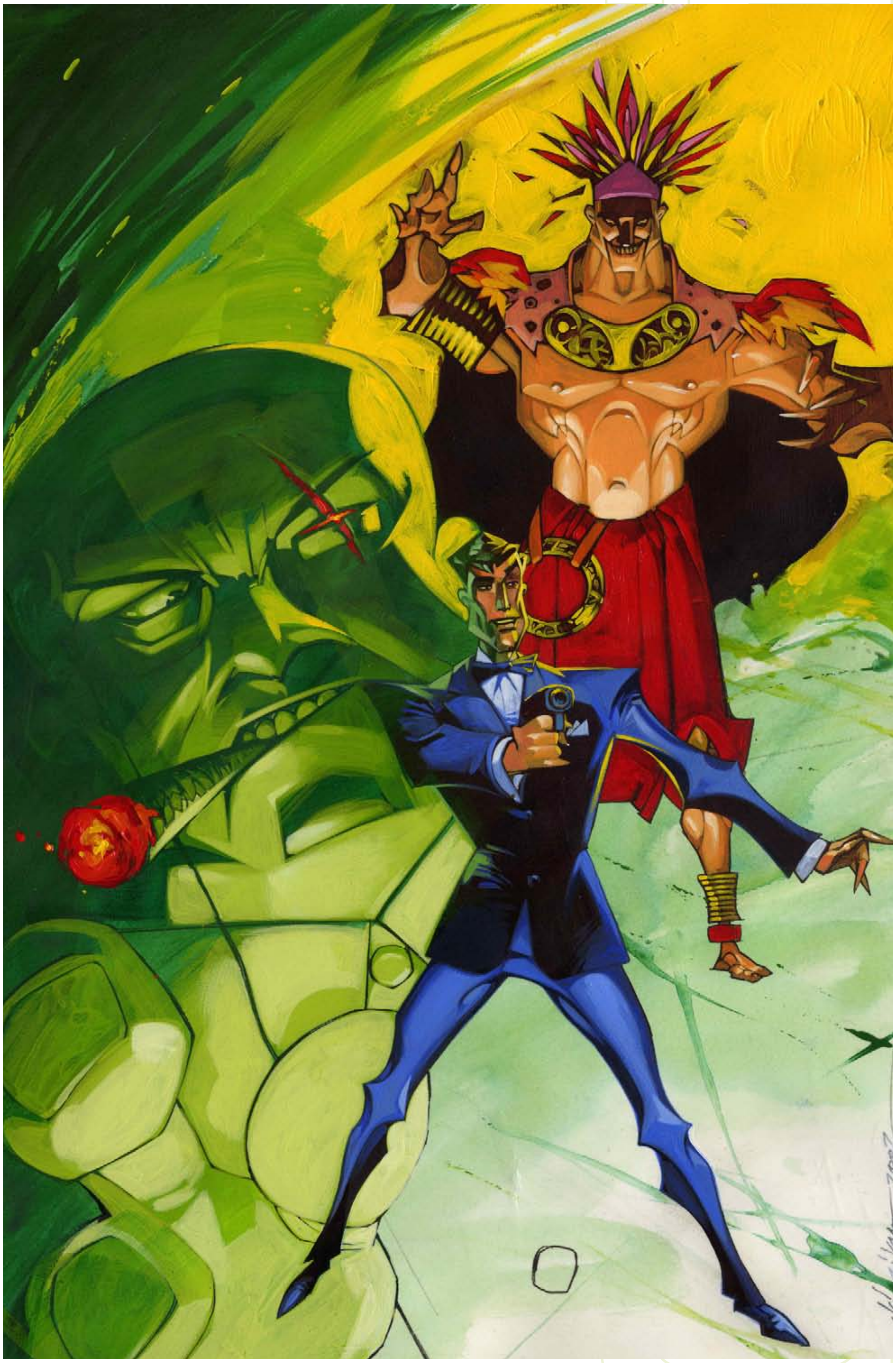

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Fig.02

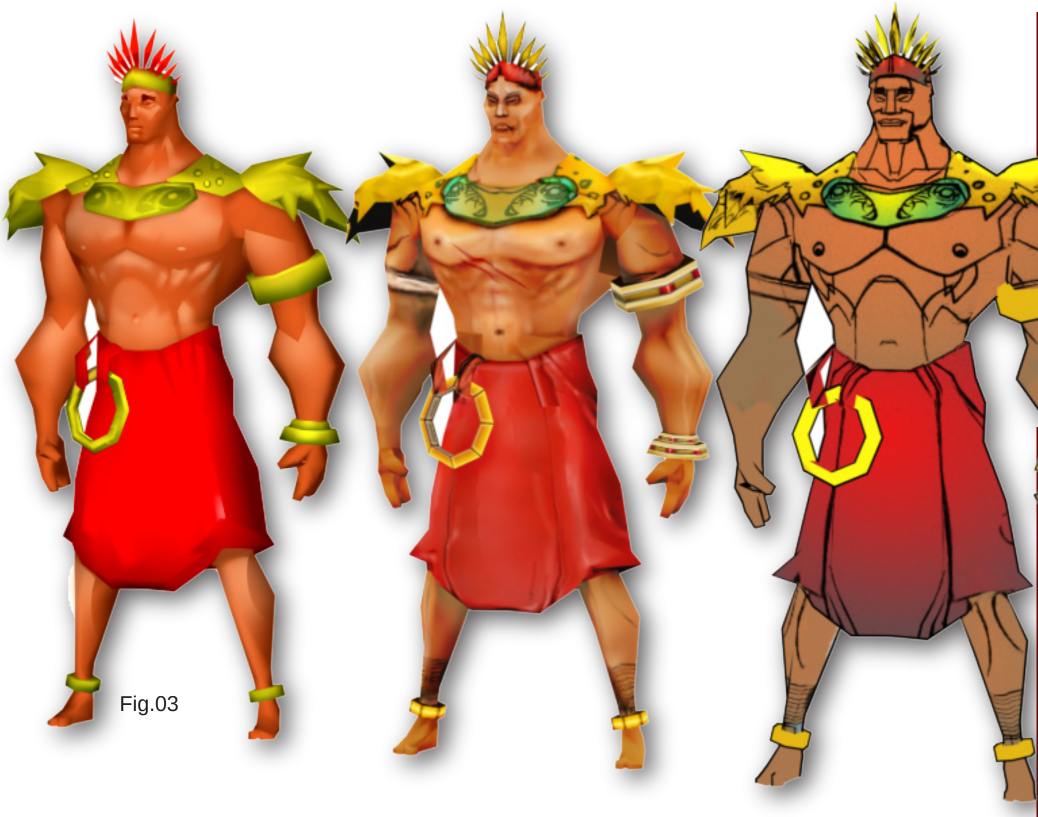

Fig.03

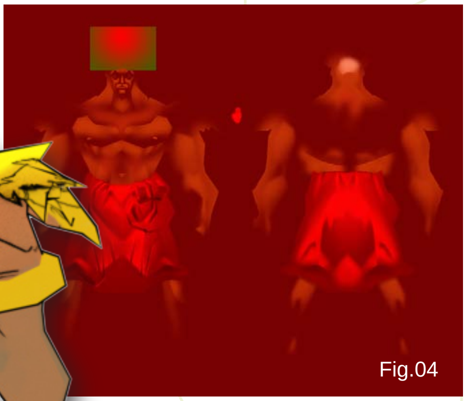

Fig.04

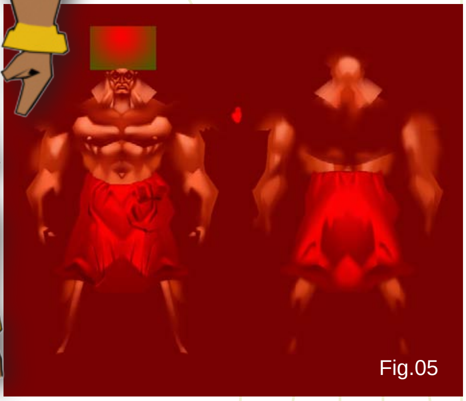

Fig.05

Fig03 is a shot of our preliminary solutions with the concept art on the right, the traditional solution in the middle and my solution on the left. As you can see, hyperrealism works for naturalistic figures, for sculpted Art deco forms however, a simplified approach proved more compatible with form and more consistent overall. This early Photoshop layer shows the tones are virtually monochromatic. (Fig04) A simply graduated highlight tone creates lighting and 3D illusion. It is important not to merely use monochromatic values; for skin tones, incremental whites with yellows allows for vibrant tone as can be seen here. (Fig05). The final layers would be the Indian's accessories. Simple graduated tones are used. Again, they are not merely monochromatic. The simplicity disguises the extent to which I have attempted to simulate 3D values. (Fig06)

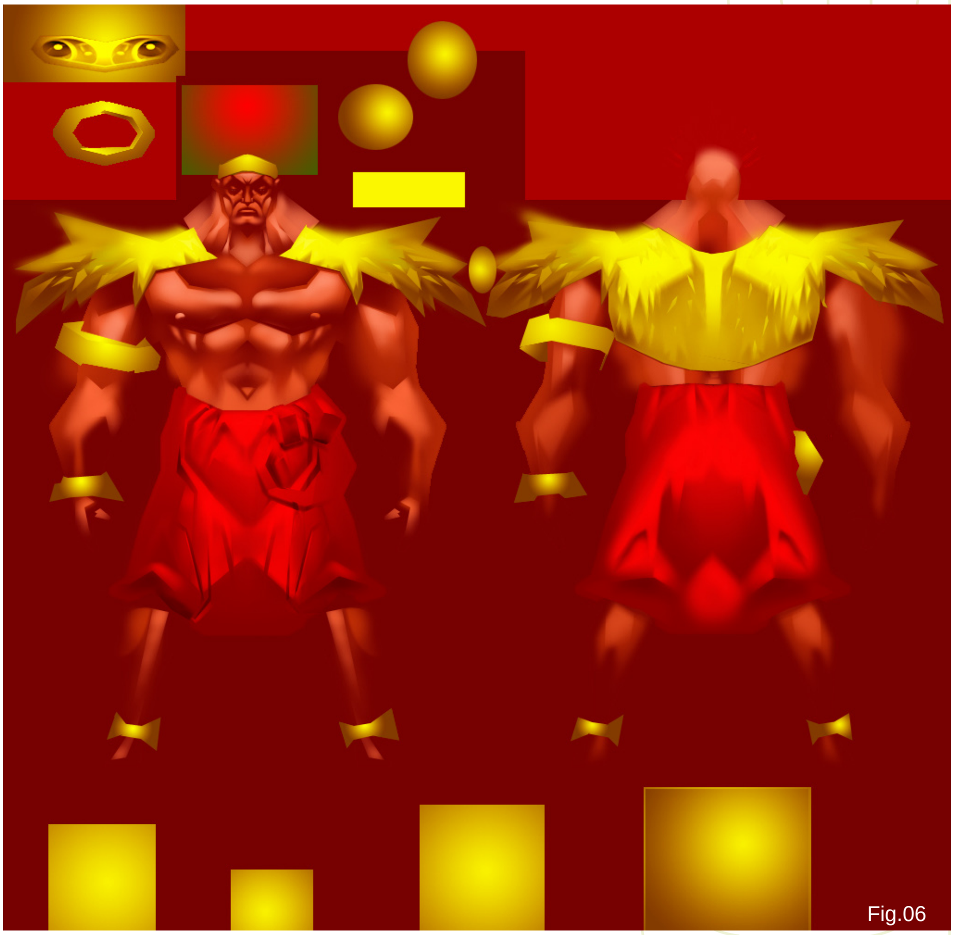

Fig.06

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PLANAR UNWRAP MAPPING

For our experimentation, we used planer UVW mapping methods in 3Ds Max. Your 3D software will have that option. There are advantages and disadvantages with this method. The first disadvantage is the poor use of texture space. In games, texture space comes at a premium, it is best to minimise wastage. Another problem with planar unwrap for characters is not being able to prioritize important spaces. For example, the faces of your characters are important and where possible should take up larger space in your unwrap map. On the other hand, planar unwraps allow for a more instinctive illustrative style. A powerful illustrator is better able to take advantage of planar unwraps. One of the great ideals of Walt Disney in the 40s/50s was his ambition to make animated stills look like book illustrations; planar unwraps allow skilled painters to get closer to an illustrated book feel. A second experimentation with a different model is now employed using a samurai character. Here is another example of a planar unwrapped texture map. (Fig07). As you can see from the texture applied to the model, there is not very much guessing or stretching done in planer unwraps (the problem issues would be underside areas and those should be unwrapped separately). For painting, I found simple gradient tools/masked airbrush work sufficient. (Fig08)

The final renders of our experiment (Fig09)

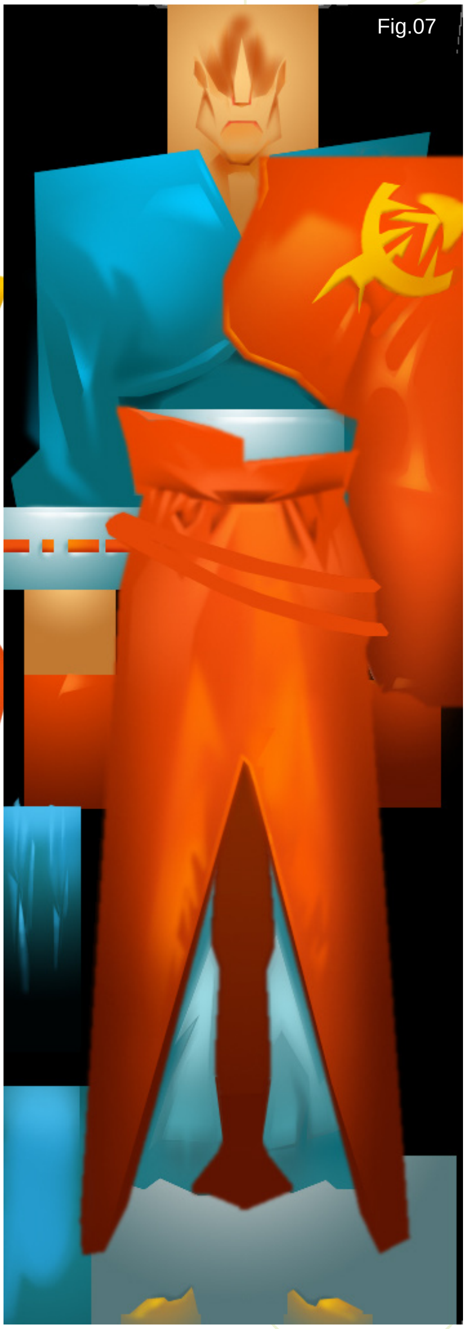

Fig.07

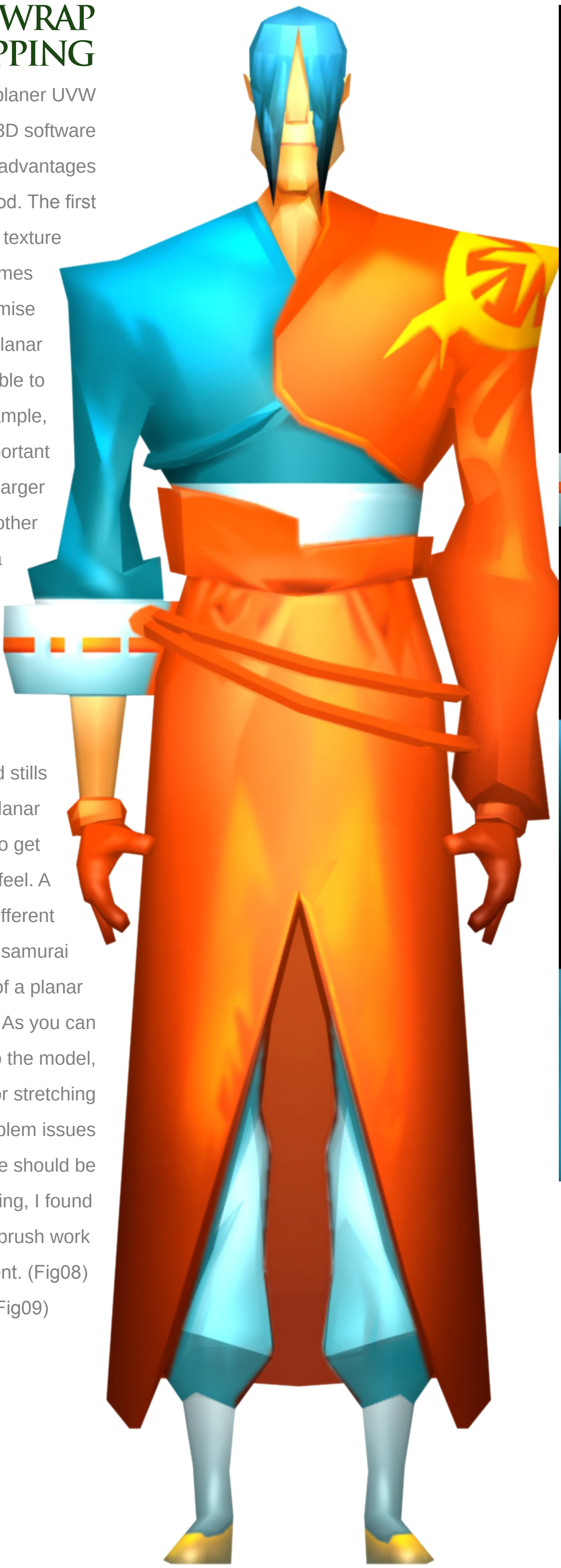

Fig.08

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Planer mapping is no longer commonly used in games development. For our tutorial, we will employ the use of conventional mapping; that means multiple unwrap methods within a texture map. This maximises the use of texture space and texture priorities. Our tutorial will not be based on an extreme Art Deco stylisation but on a more common caricature style. First, we will do an exercise exploring my technique.

UNCONVENTIONAL TEXTURING METHODS: PRACTICE WITH METAL BALLS.

Before we move on to an actual game model, I have devised a simply exercise with a simple object that may familiarise us with some of my unconventional techniques. You will find this exercise useful as the same techniques are used on our tutorial model later. Besides, I do not believe in prescribing how one is to decide actual application of paint. This tutorial will free you from slavishly replicating my decisions on the tutorial basketball player. I think understanding the technique- not copying the method, is importance. I have here two metal balls. The first, painted by freehand in Photoshop. The second ball, painted mechanically using Photoshop masks, gradient tools and wind blur filters. I will explain later why I rarely use Photoshop's Gaussian blur filter, Smudge or burn tools. For now, we will concentrate on the differences between freehand airbrushing and mechanical airbrushing. (Fig10)

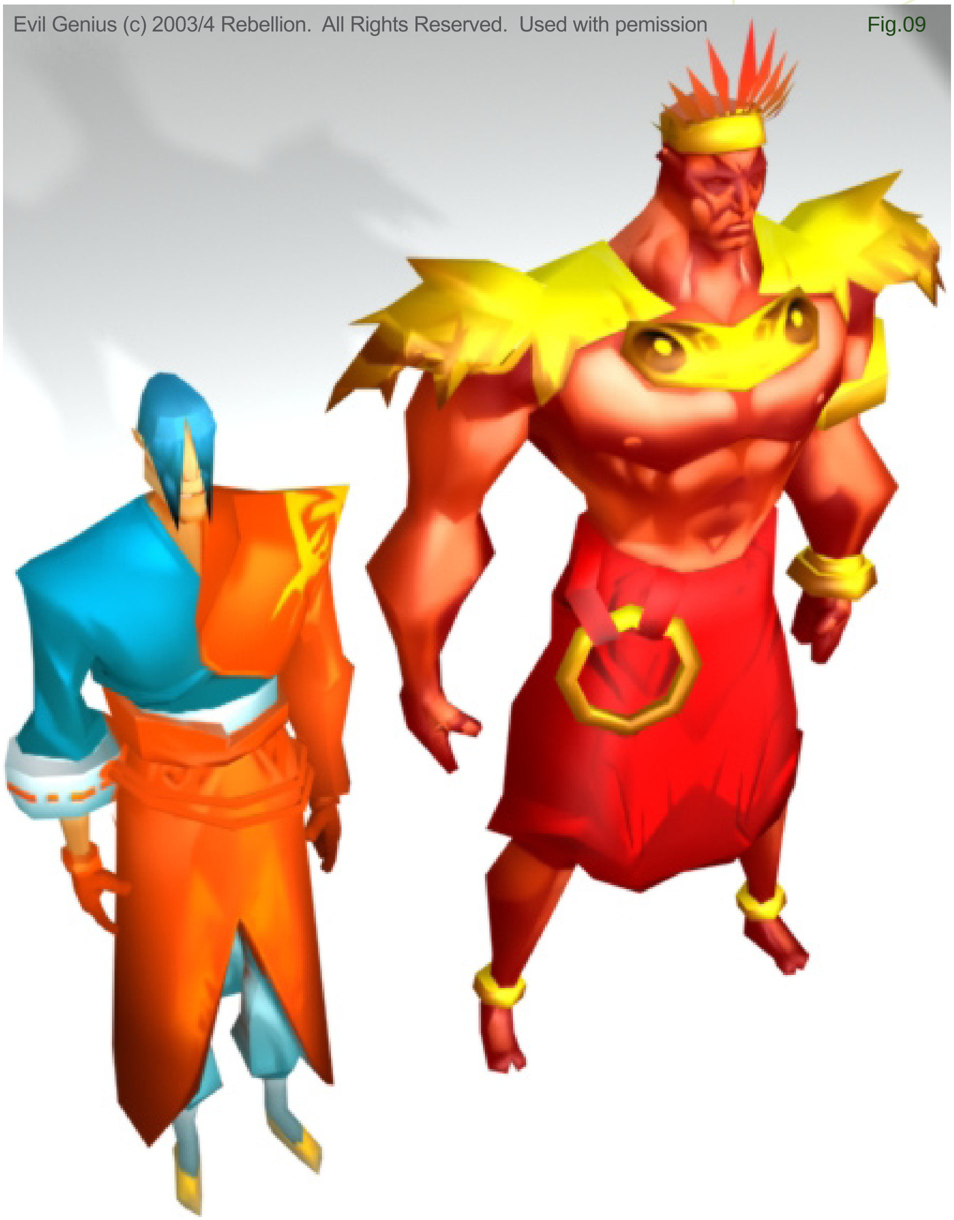

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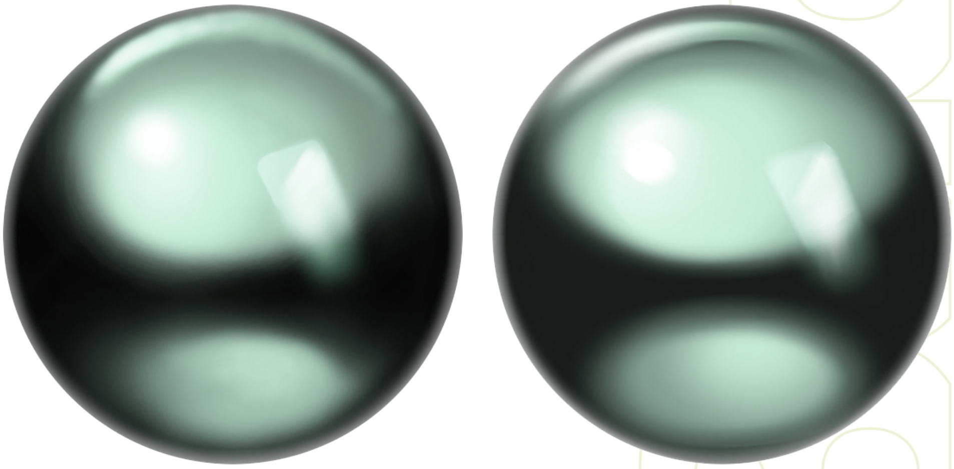
Fig.09



Freehand

Mechanical

Fig.10

Freehand painting right (Fig11), Mechanical painting below right. (Fig12) A closer look at both balls demonstrates the differences in results. Freehand is great for painting rust buckets and monsters with acne. If you want to do a Toy Story-esque theme, gradient tool based painting is your best bet. With freehand painting, the artist's imperfect hand movements can be seen. Certain styles require painted smoothness with absolute consistency; this is why gradient tools are used for such textures. These layers show how I build up my tones in both techniques. You will notice that I used motion blur instead of Gaussian blur for the black base of the second ball. I tend to use motion blur because it adds character to what could potentially be sterile. (Fig13). I have taken extra care with the first ball keep the tones as smooth as possible, yet, it cannot match the consistency of the tones in the second ball. (Fig14). As stated previously, I rarely use Gaussian blur. You will discover that with ample use of Gaussian blur, your texture will end up looking wooly. Judicial use of motion blur on the other hand lends character to soft and hard folds, solid walls or even skin.

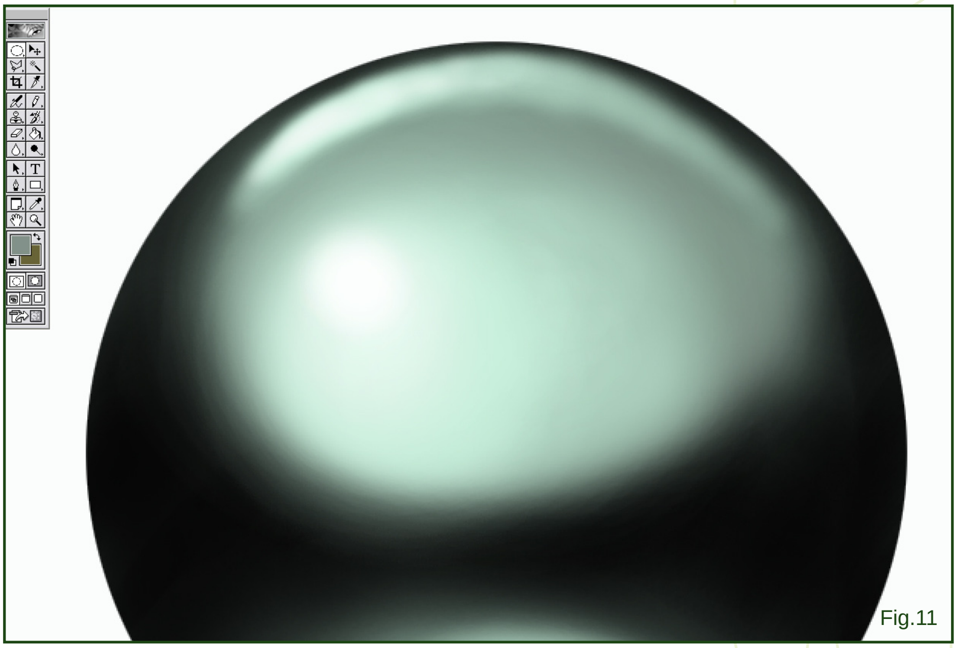


Fig.11

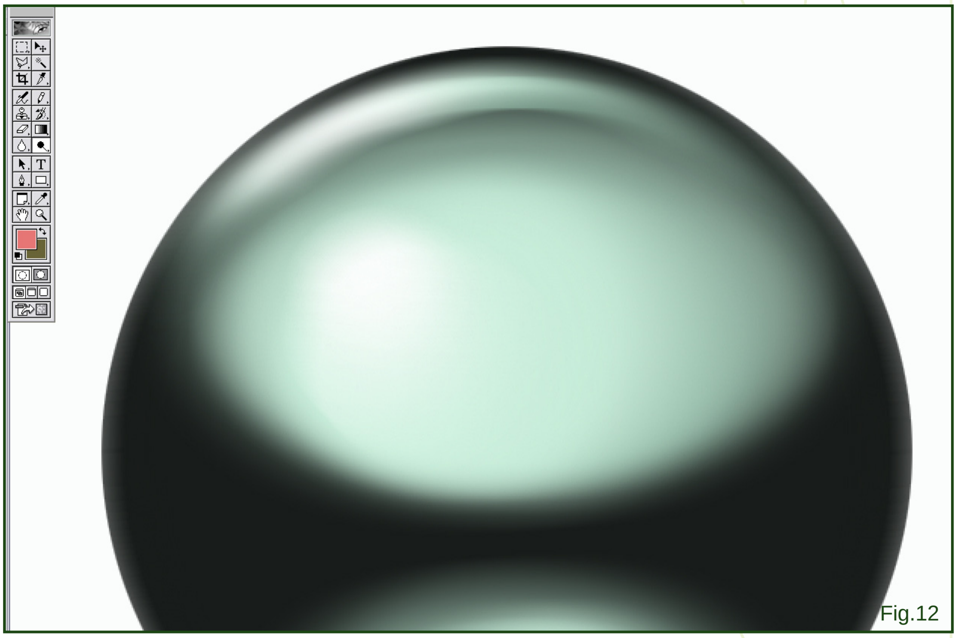


Fig.12

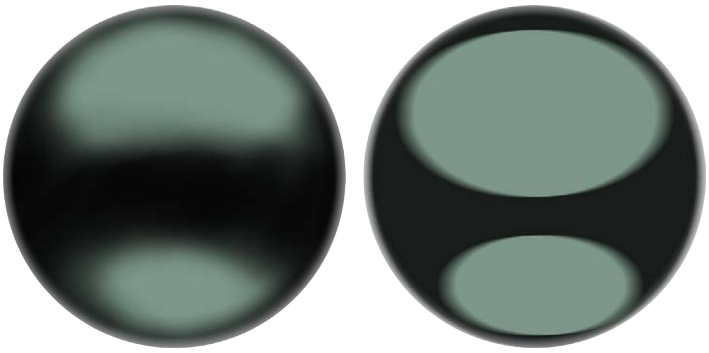


Fig.13

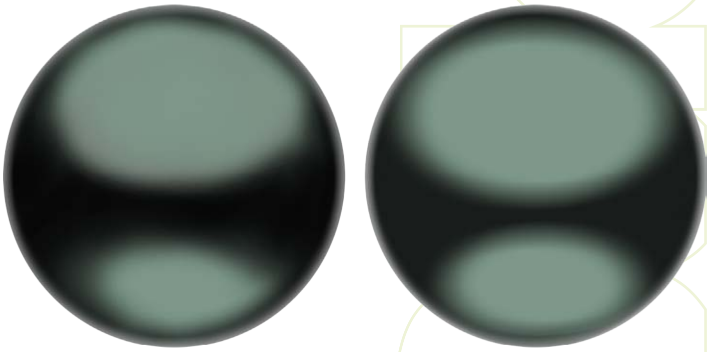


Fig.14

I have applied Gaussian blur for the large grey area, but to add a certain hardness to the ball I will now use motion blur for several touches. The first of which is a hot spotlight on the side of the ball filled in with solid white. (Fig15). Each effect is done on a separate layer for maximum control. The trick with motion blur is to get the angle right. I have chosen -36 degrees here, I would suggest choosing an angle to your taste. The blur distance is also at your own discretion. The point to remember with these parameters is that blur distance and angle will affect the outcome drastically, judgment must be exercised as to how appropriate such an unconventional application is. (Fig16). I have added a secondary glaze to the right side using the same method. (Fig17)

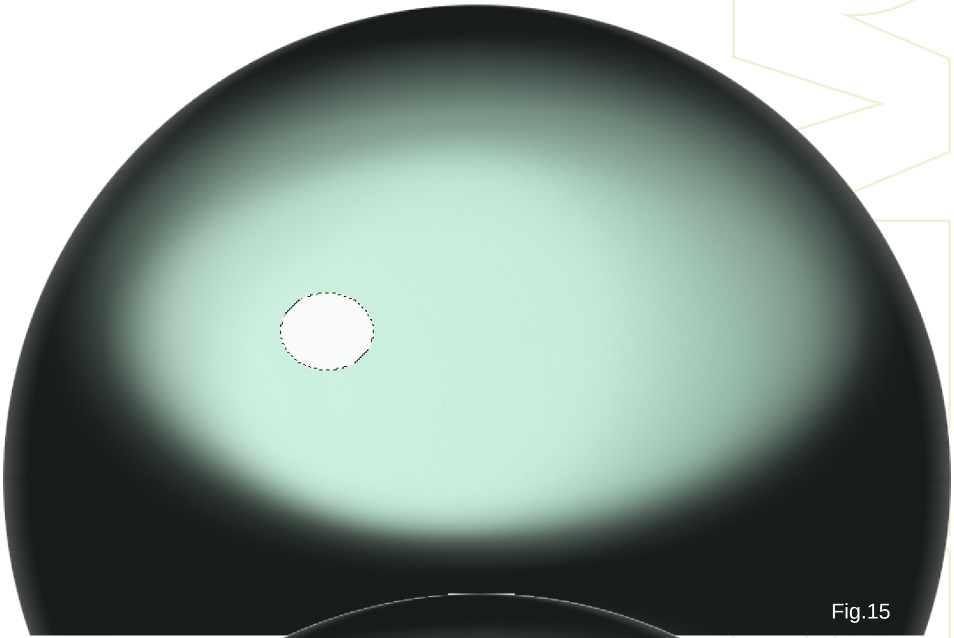
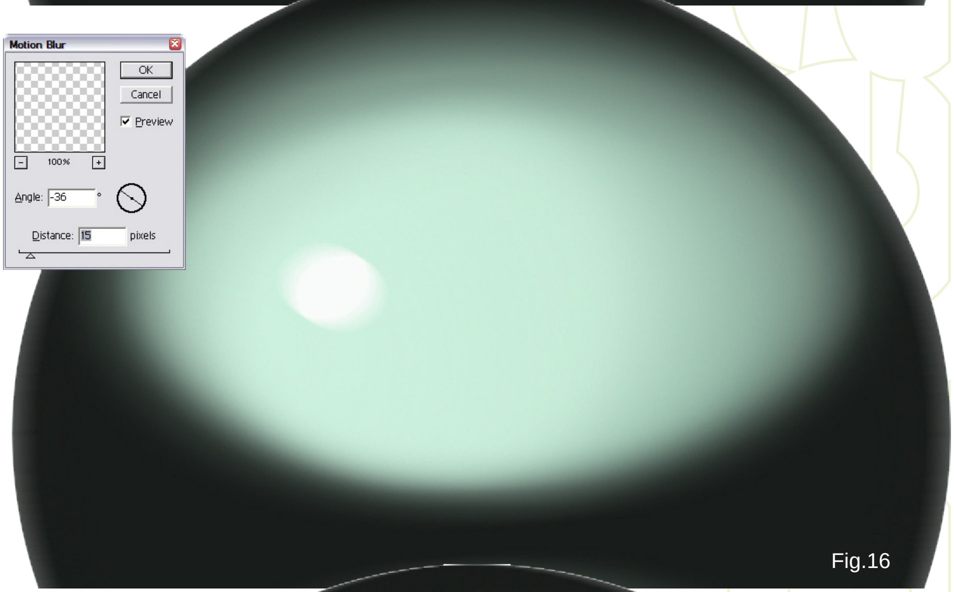


Fig.15



Angle: -36 °

Distance: 15 pixels

Fig.16

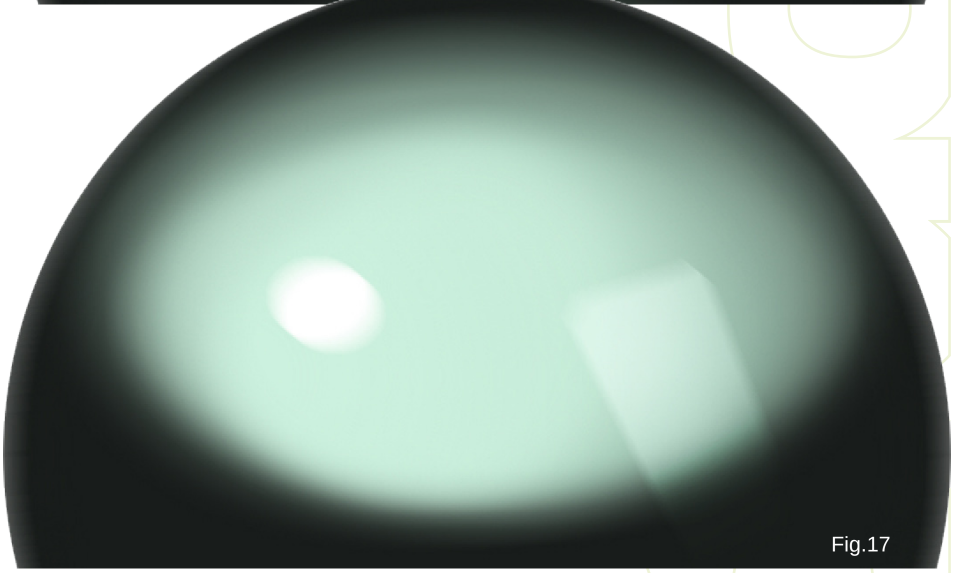


Fig.17

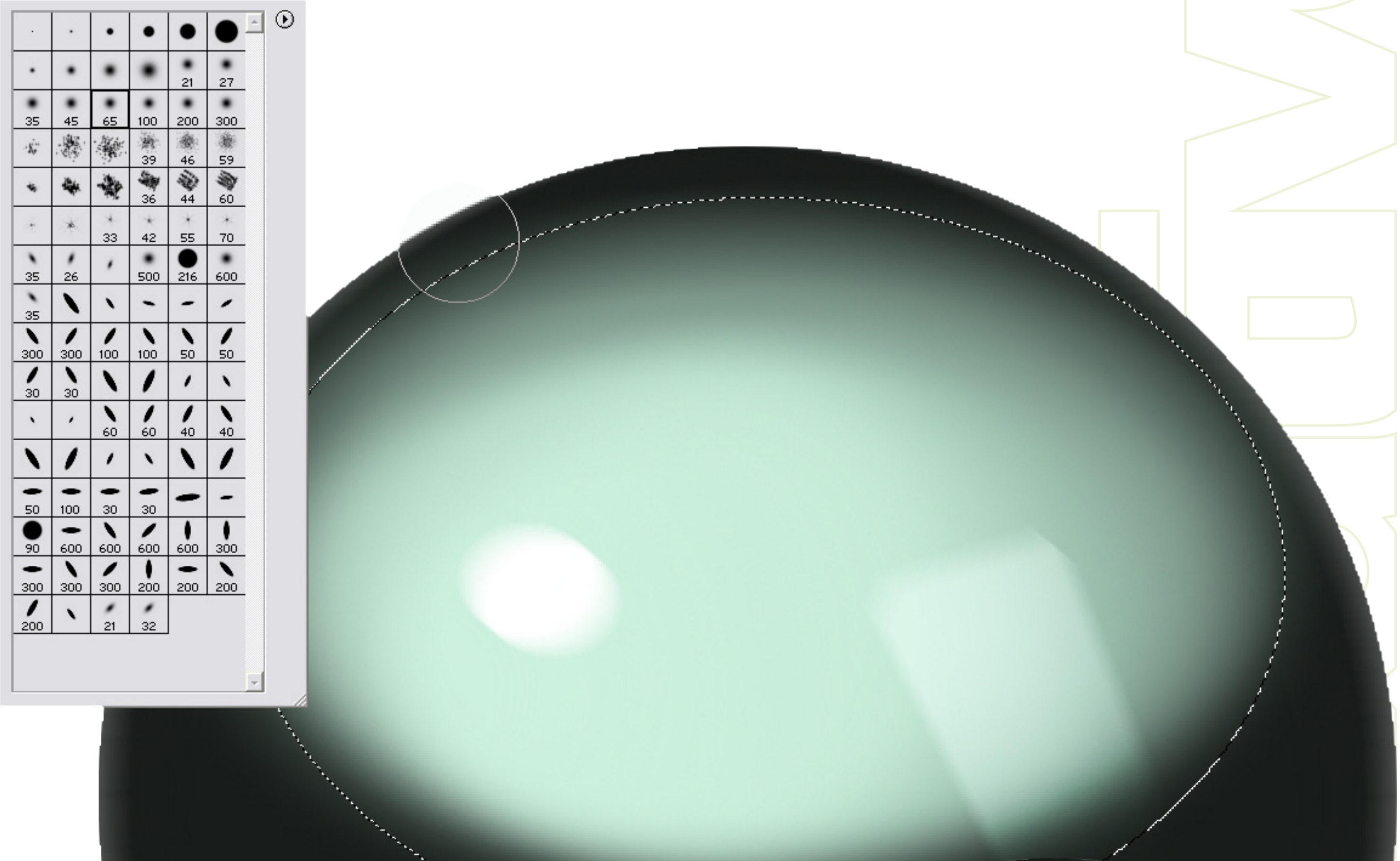


Fig.18

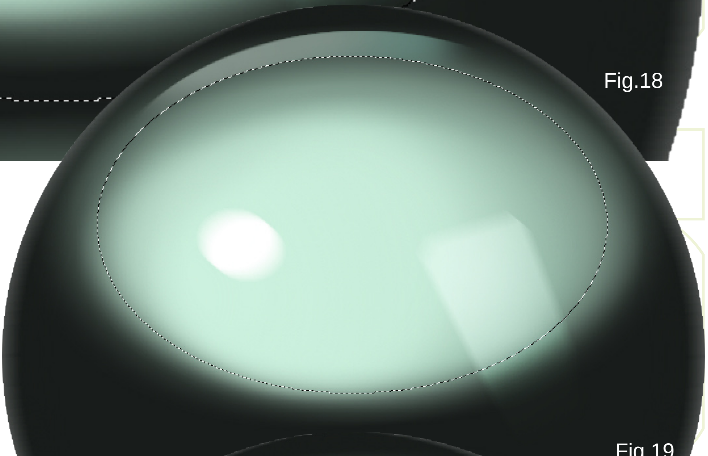


Fig.19

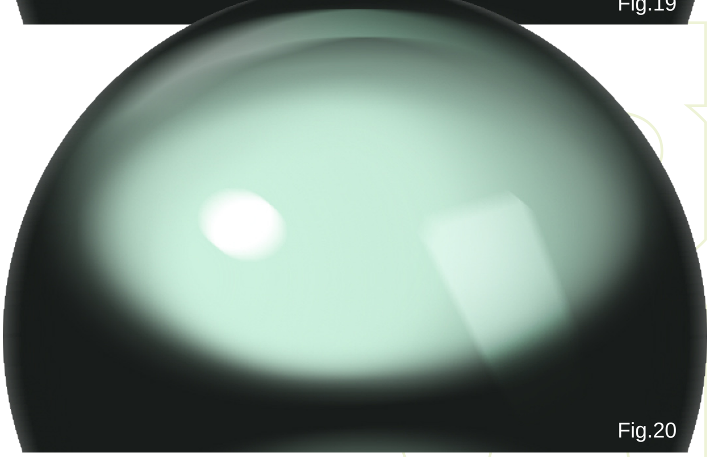


Fig.20

Here, we will use some of the most common masking techniques I use for all my masking work. You may have noticed from my brush pallet that I have several customized brushes. These are designed to suit my disposition. They are easy to design in Photoshop 6. I think Photoshop 7 is un-intuitive at best and quite clumsy in the extreme. However, I digress. Here, I am trying to create an offset highlight effect. I have created an oval mask. Make sure the oval select menu is set to normal for that non-fixed axis flexibility. I will proceed to shade my chosen position using a large brush. I always use a large brush to disguise hand movement and therefore maintain paint consistency and fine gradient. (Fig18). I then create another smaller oval selection to clear the bottom of the highlight. You should have a crisp airbrushed shade. (Fig19). Simply motion blur for effect. Besides giving character and movement, motion blur blends the edges with finesse. (Fig20) Now add your final brighter highlight using the same technique. (Fig21). Finally, soften the edge of the ball. (Fig22)

SMUDGE DODGE AND BURN TOOLS

I do not use these tools for painting, in particular when creating consistent tones for cartoon or stylized textures or in general when painting gritty textures. It is of my opinion that certain tools do more harm than good. Just because a tool exists is no reason to use it. I have seen painters use the smudge, dodge and burn tool to the detriment of the texture. There are of course occasions to use them, but I really believe that skin textures (or many other surfaces) is not one of them. Take another look at a number of skin tones in games and see how some characters look like they have face powder on. These tools have a bleaching effect on skin. They tend to lack pigment/hue quality leaving a dirty or washed up look. Try instead to use colour to simulate a bleached look. Another way sure to surprise you, are Photoshop's layer blenders in the layers window. Blenders like Overlay and Screen can be a revelation. What I do is paint the tone variations normally then attempt to see what it would look like in some of the layer blenders. You may need to modify the original hue slightly in image>adjust>hue/saturation menu or adjust the opacity of the blender later. If you know how to paint well, try to use hue rather than the aforementioned tools above to simulate what you need. Your textures will end up looking richer. Back to our metal ball, I selected the background with the selection tool, filled it with white on a separate top layer then Gaussian blurred it to soften the edge of the metal ball. In next months issue we begin the texturing process of our basketball player character.

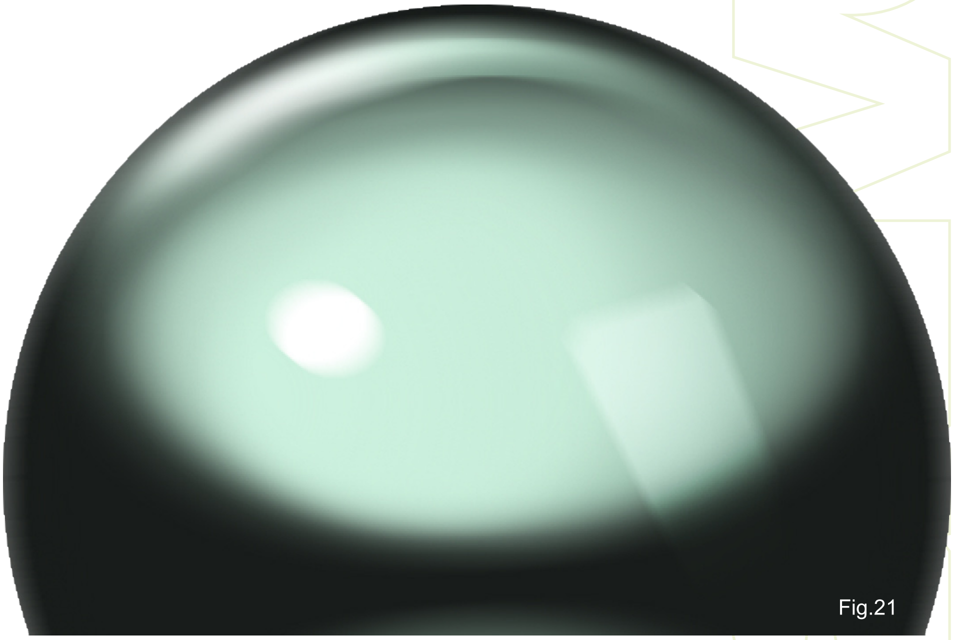


Fig.21

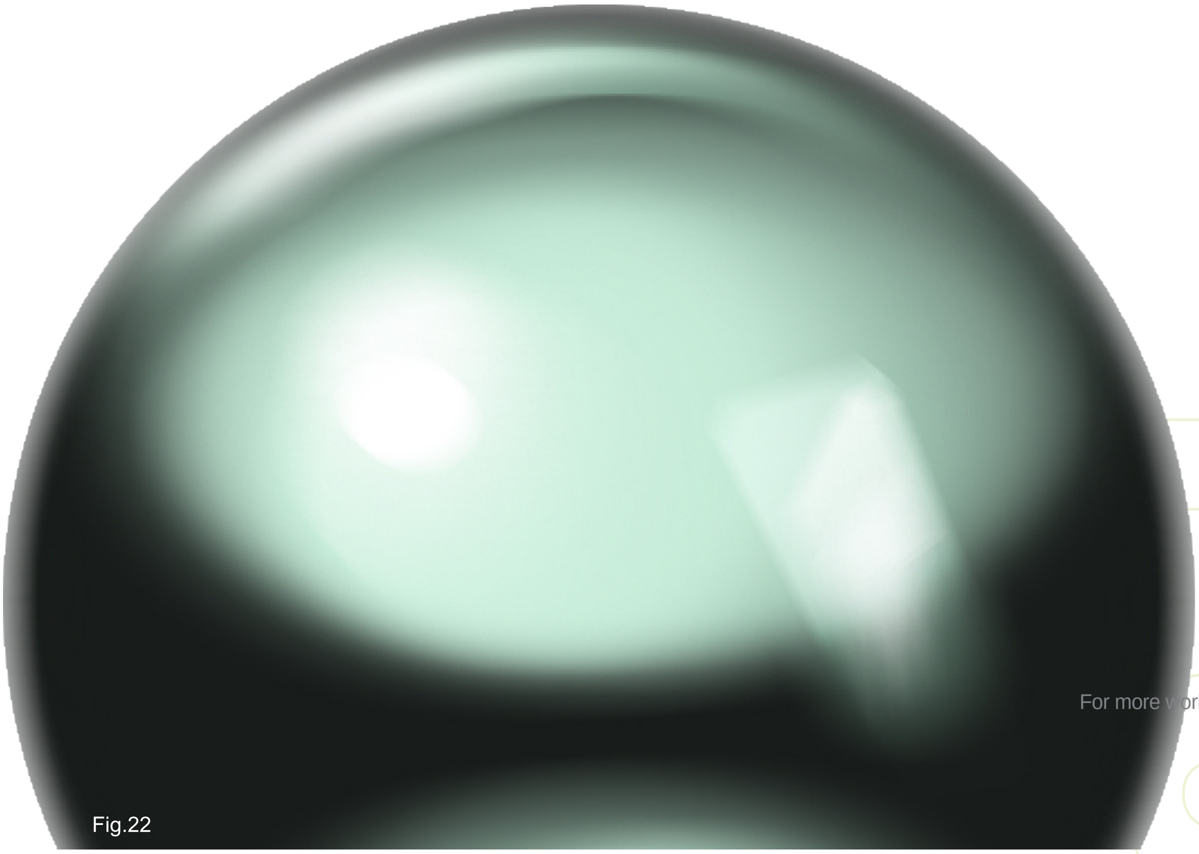


Fig.22

TUTORIAL BY SIKU

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or contact
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UV mapping portrait of a girl
Adobe® Photoshop CS2
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texture painting portrait of a girl
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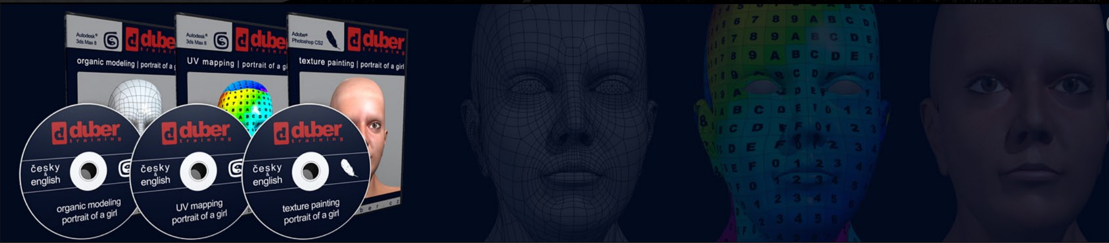
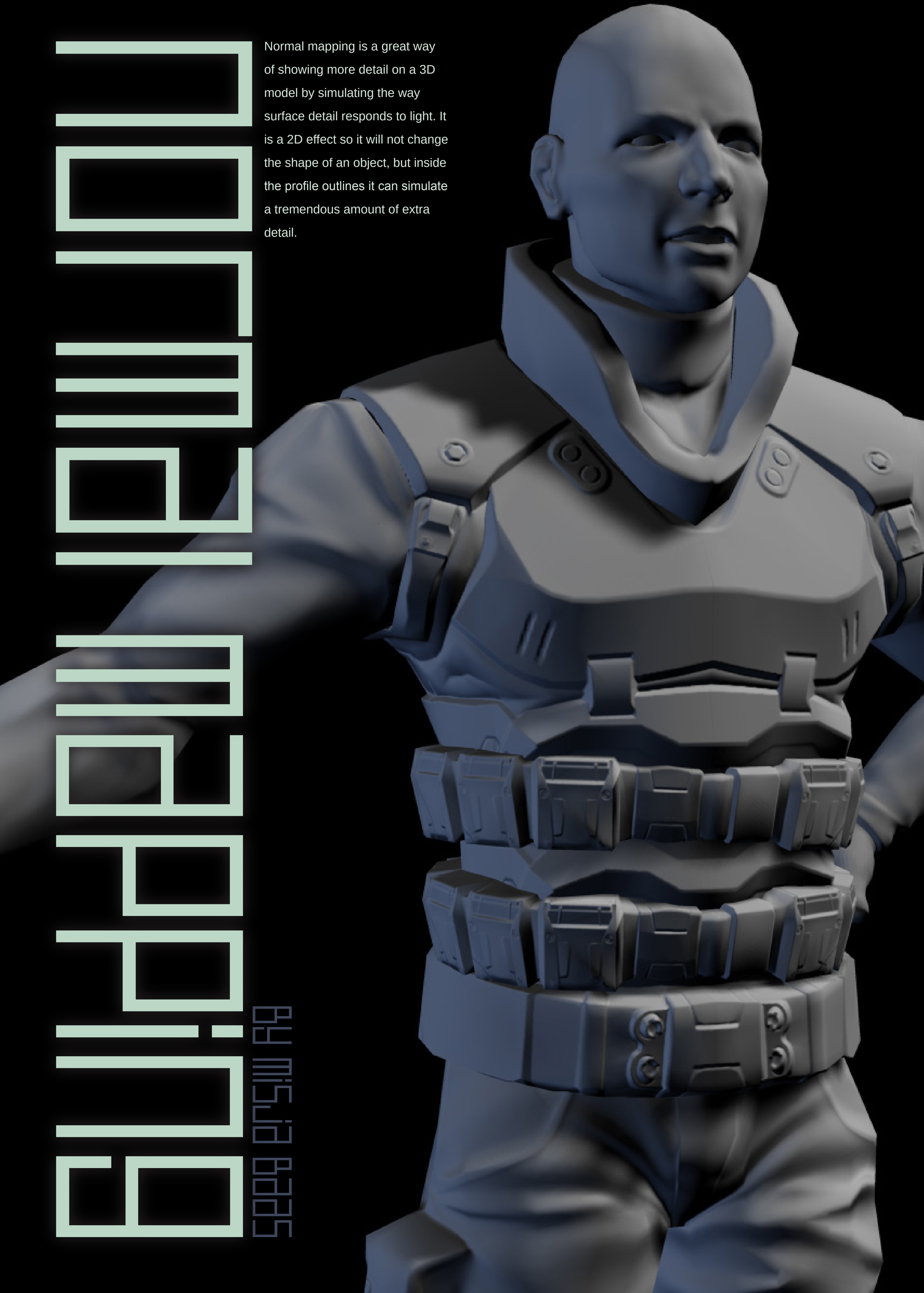


normal mapping

by miscia baas

Normal mapping is a great way of showing more detail on a 3D model by simulating the way surface detail responds to light. It is a 2D effect so it will not change the shape of an object, but inside the profile outlines it can simulate a tremendous amount of extra detail.



NORMAL MAPPING

This is very useful for real time game engines where processing power is a limiting factor or animations where it's render time that can be the limiting factor. Fig 01 is the Original and normal mapped object. Normal mapping is not new but with the latest graphics cards it's become more and more affordable. It's very similar to bump mapping in that they both achieve the same effect. However, bump mapping simulates vertical offsets relative to the face direction it's projected on, new directions are a result of the height differences between neighboring pixels. Normal mapping on the other hand uses colors to indicate directional offsets, making it far more efficient. It doesn't use it's neighbors to determine it's angle, a single pixel is enough. The red channel in a normal map encodes the left-right axis of normal blue channel encodes vertical depth. This makes for a pretty interesting image that is, unfortunately, impossible to paint properly by hand (unlike bump maps). Which means you have to generate a normal map, this is done in several ways, you can bake it, render it or convert a height/bump map.

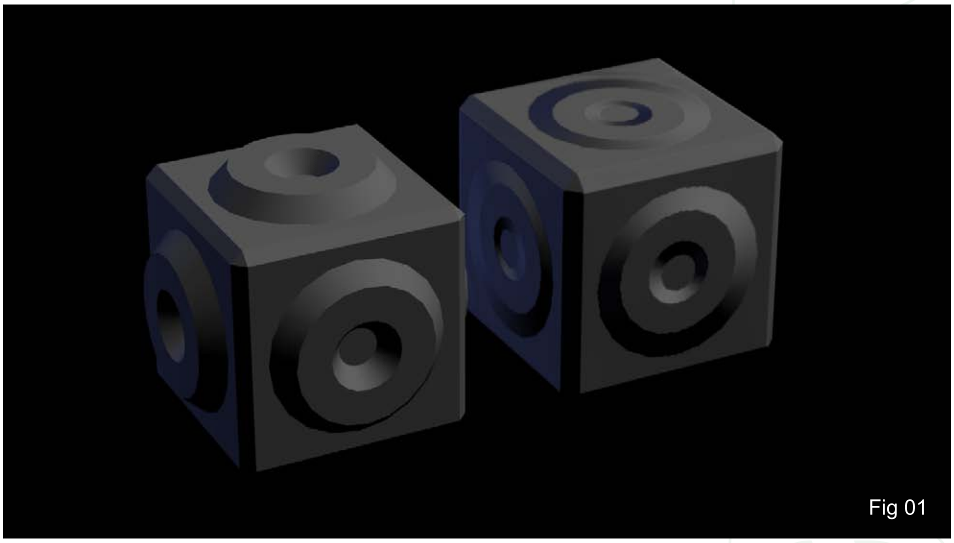


Fig 01

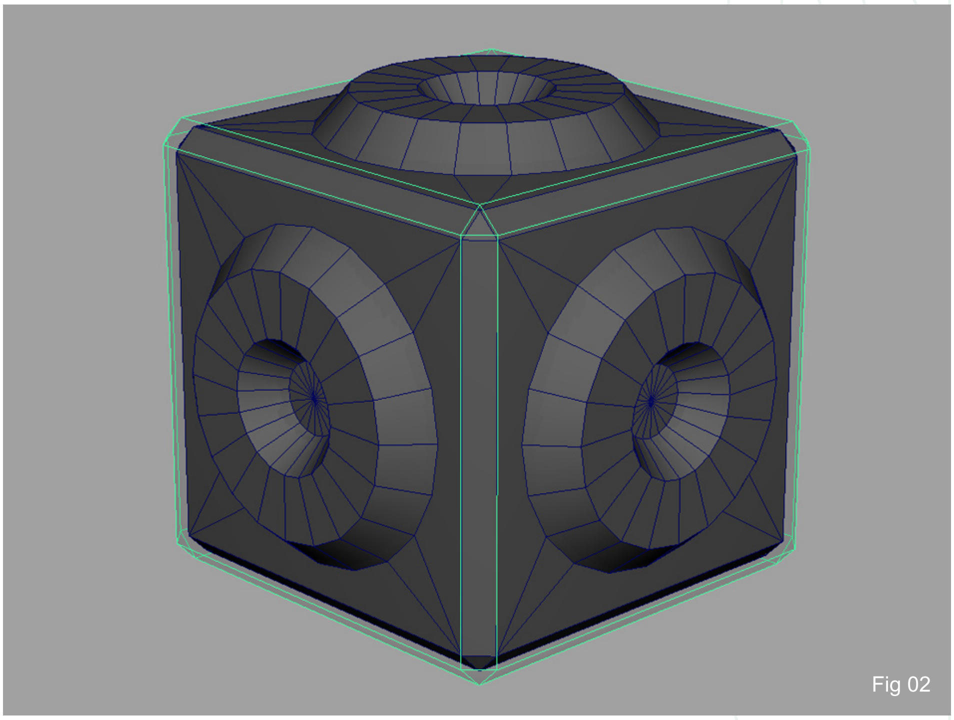


Fig 02

BAKING

Baking is the process of capturing the surface detail of the source object and transferring it to the target object, During the baking of a normal map the software will compare the two surfaces and determine which colors are needed where on the target surface to compensate for the difference in shape between the two objects. Fig 02 shows Source object and the target object partially enclosing it. Baking is done by casting rays from the low poly surface (also called target since it will ultimately receive the normal map) onto the high poly surface (also called source) , the direction of the rays is determined by the vertex normals, they can be cast in both directions, forward and backwards. If you have a smooth surface (or one smoothing group) the normals are "averaged", when you have a hard edged surface the normals point in the direction of the face normal, i.e. straight up from the face.

This is an important difference to be aware of when you start baking because when your edges are hard the vertex normals for one face point in a different direction than the vertex normals of it's neighbors meaning you get "blind spots" in the projection. Fig 03 shows the Soft and hard edged projections seen from the side. Another thing to be aware of is in order to bake a map properly every single polygon that is going to be included in the bake needs to have it's own space in the UV layout. You cannot have overlapping UV's since the software will not know which of the faces you want to be used in the calculation and instead will draw them all at once. Since the target surface is one big, very complex projector you should treat every face on it as if it where an inverse UV projector, sucking up the image instead of projecting it. By looking through a face on the target mesh, as if it where a window, you should be able to see every polygon on your source mesh pointing more or less in your direction. If a source poly is perpendicular to you, or pointing away from you, it won't be captured on the normal map. Another thing to take into account is that you need to see enough of each source poly so it can be given enough pixels to clearly define it on the normal map. Check projection directions and visible surface detail (Fig 04). All in all baking is the most time consuming method but it will also give you the best results. It's worth it!

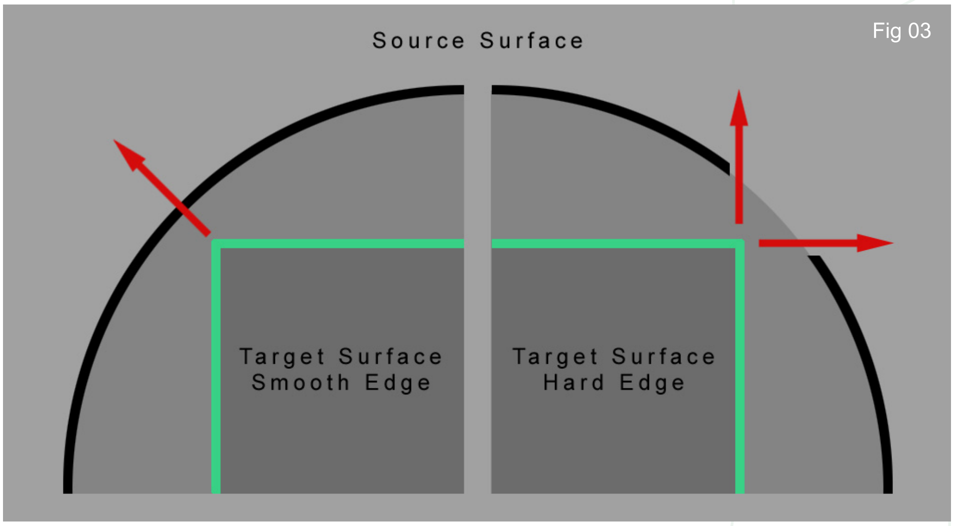


Fig 03

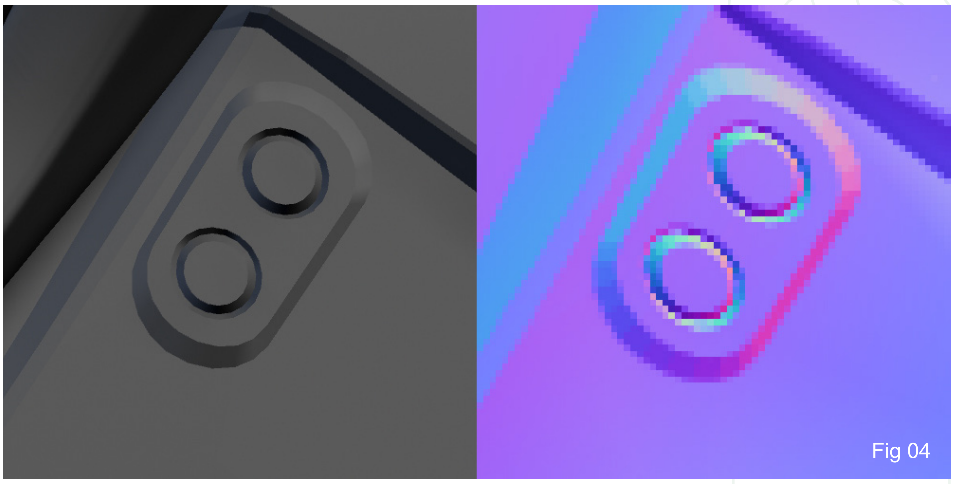


Fig 04

RENDERING

Another way of making a normal map is by rendering it. Rendering a normal map can be done by applying a normal material on a surface. This material will, during render time, color the surface relative to the camera you're rendering from. This method does not use a source and target mesh and is in a way like making a texture map. You model your surface detail as you would paint it in Photoshop, top down, with only relatively small directional changes, any polys perpendicular to the camera will of course not be visible and there for require their own little bit of space in render, just like a texture map.

CONVERTING A HEIGHT/ BUMP MAP

Converting a black and white image can be done in Photoshop using the Nvidia Photoshop plugin, this allows you to paint a black and white image and encode it into a normal map. This is in a way similar to the render method and not suited for complex shapes. You can however use this method to add extra detail to a baked normal map like surface textures, stitching, scars, pocks etc. if you can't be bothered to model everything down to the last millimeter. Some bake software will allow you to slap a bump map for this kind of detail on your source mesh and bake that with it which gives a much more accurate result. You have to wonder if the resolution of your normal map will be able to display this kind of detail at all though.

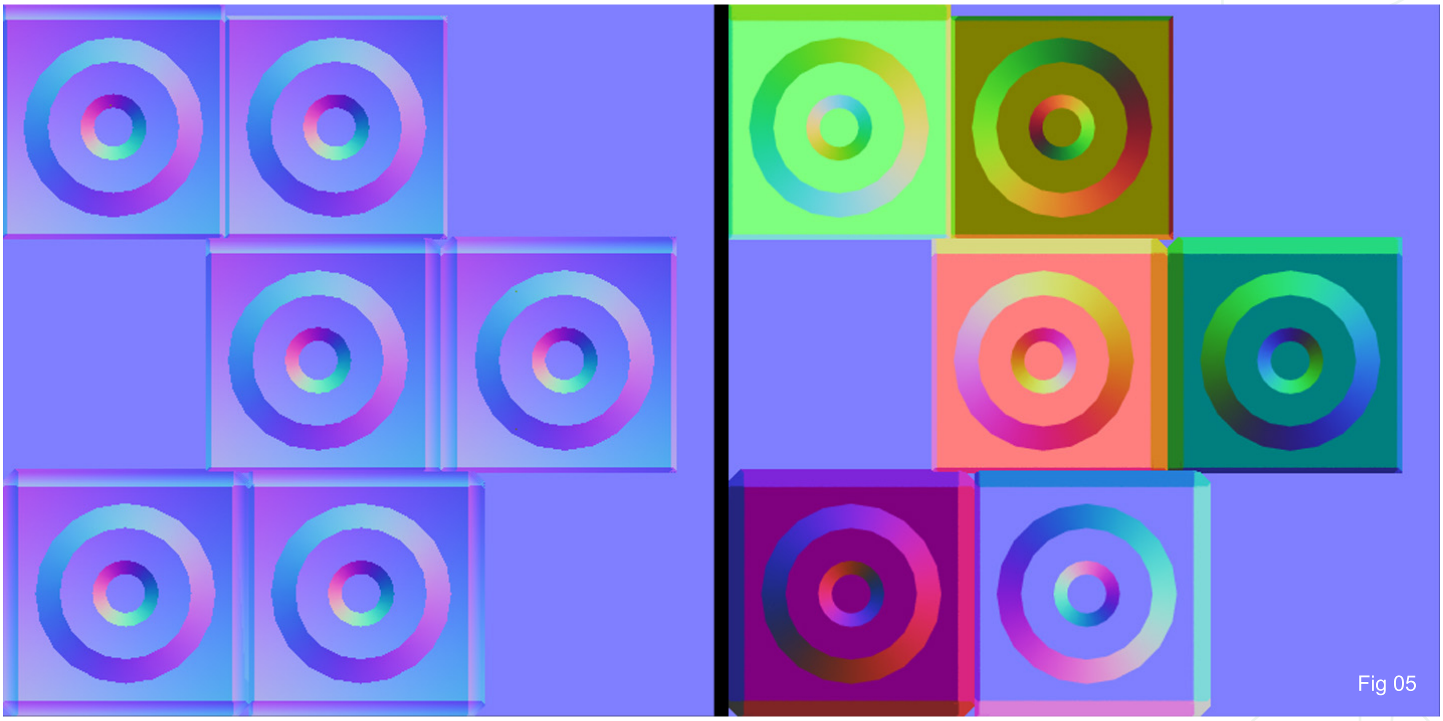


Fig 05

One thing to bear in mind is that whenever you make a change to your normal map in Photoshop you will need to run the "normalize only" option in the Nvidia plugin. You need to do this because a normal map needs to be mathematically correct in order to work properly (this has got something to do with the dot product of combined pixel values, all very boring tech stuff and too in depth for this chapter)

TANGENT-, OBJECT- AND WORLD SPACE

The surface detail or offsets simulated by a normal map are always relative to either the polygon it's projected on (tangent space) or the object's orientation (object space) or the world (world space).

TANGENT SPACE

Tangent space is computationally the most expensive one for real time game engines but also the most flexible one. It looks at each target face's direction as defined by it's vertex normals and calculates the new lighting solution by offsetting it with the information from the normal map. This is the only type of normal mapping that you can use on deformable objects such as skinned or boned characters. It also allows you tile your map or re-use elements of your mesh on other places, rotating and twisting these as you see fit. This is a great way of freeing up more texture space on your normal map.

OBJECT SPACE

An object space normal map only looks at the orientation of the entire model it's applied on to calculate the per pixel directions on it's surface. This is great for non-deformable objects like, say, barrels and crates. It will allow you to duplicate elements on your mesh as long as you do not change their orientation. When an object space normal map tells a face it's supposed to receive light coming from the left of the object it will always do so, even if the face is pointing away from the light source.

WORLD SPACE

World space normal maps are great for objects that don't ever move or deform like, say, the world. Fig 05 shows the Tangent space (left) and object space (right) normal maps of the same cube.

PUTTING IT INTO PRACTICE

Since this is not a character modeling tutorial I will not go into the authoring process of modeling a high poly character, one tip I can give you however and that is to work in small parts when working on the high poly mesh. This way you can limit the amount of polys per object you are working on, making it all a lot less painfull when your total polycount is reaching the 500.000 mark. For normal map generating purposes you don't even have to attach and weld the different sub components together, as long as they fit seamlessly you should be fine. I started out with a rough version of the low poly in game model (low is rather relative since it's aimed at next gen platforms and these can easily deal with 6000-8000 poly character models, in any way it's lower than the source mesh, so low poly is still apt.). Making a rough low poly version helps you to get started and will give you an idea of where your detail should go and how you are going to capture it in the baking process. This is ofcourse not a rule and every method is valid as long as the end result is good.

Then I subdivided the organic components such as arms and legs and started working into them, I used a poly proxy object/mesh smoothing on the trousers using zig zag patterns to create the creases. The arms where imported into Z-Brush 2 for some quick soft wrinkling. Z-Brush is great for organic stuff, it can however be a bit tricky to get used to it.The head I modeled entirely in Z-Brush2 using Z-spheres. I later remodeled the low poly version in Maya to make sure I get the right edgeloops for facial animations. The hard surface detail I kept fairly low poly compared to the rest, there's no point in making your objects unnessecarily heavy, it will only slow you down and it makes it harder to reshape them when you feel like it. And you will want to do that, since you will find yourself going back and forth between your source and target meshes. Like I said earlier, cut your model up in smaller manageable parts, this way you can keep focused and organized. When the high poly version was finally ready I remodeled the entire low poly model from scratch snapping it's vertices directly on the high poly model, of course you need to make sure you place them strategically, this can be a bit challenging when you also need to worry about your target mesh's layout for deformation later. Another good reason to rough it out first. Fig 06 shows the Finished low poly model, 6611 polys. When your low poly model is finally finished you need to properly unwrap it, assessing each component and giving it the right amount of texture space. I generally give the face a bit more resolution since it is the main focal point on any character, I also decided to tile the ammo belt boxes since the detail was so fine it needed extra space on the map to capture all the tiny details. I did this by only baking a few boxes and then re-attaching the remaining boxes and map them to the normal map. Of course duplicating the boxes is also possible but was in this case not the fastest solution. Then it's time to start baking, interestingly there aren't that many normal map baking plugins out there. For Maya there's Turtle's Surface Transfer Editor (which I used and it's great) and Maya's own proprietary tool (which is next to useless) then there's also Microwave which ,allegedly, is also pretty good. Max 7 comes with it's own pretty accomplished normal mapping tools and then there's a bunch stand alone normal mapping tools such as Cry Tek's Polybump and ATI's normal mapping tool. No doubt all the other big packages out there have their own solutions for this but since I have no experience with them I can't recommend anything. Anyway, back to baking: this is when the errors start to appear, look out for extreme and hard edged color differences, these can be fixed by painting them away in Photoshop (use the "normalize only" option in Nvidia's Photoshop plugin before saving) or pushing the target mesh in or outward a bit, globally or locally. Don't worry too much about ruining your low poly objects shape, you can always fix this later when the normal map is finished, it may not be entirely accurate but no one's gonna notice. Besides you are an Artiste right? Whatever you made was intentional, even the unintentional… Fig 07 is the Final tangent space normal map for the character. Fig 08 is the Low poly character & Fig 09 shows the end result (left) with the high poly model on the right.

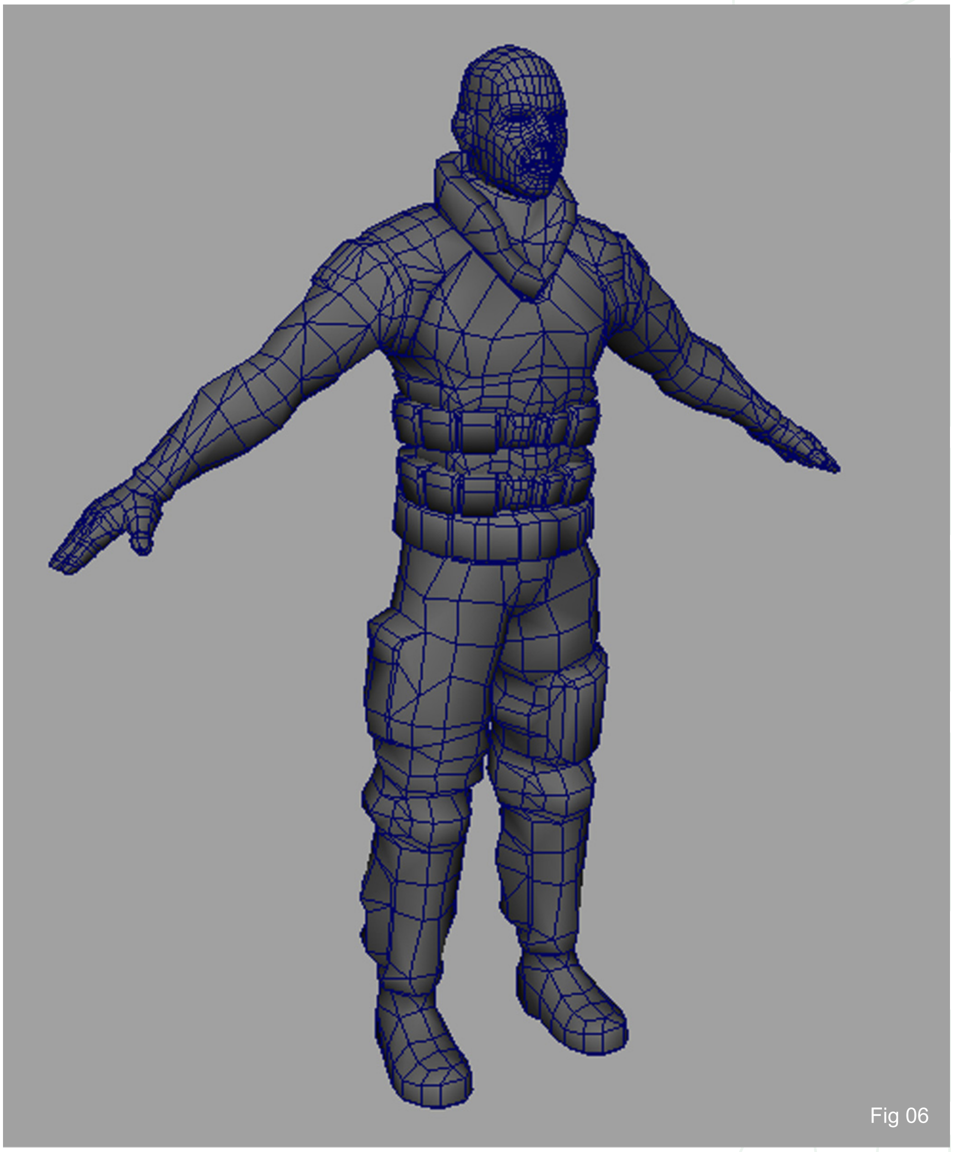


Fig 06

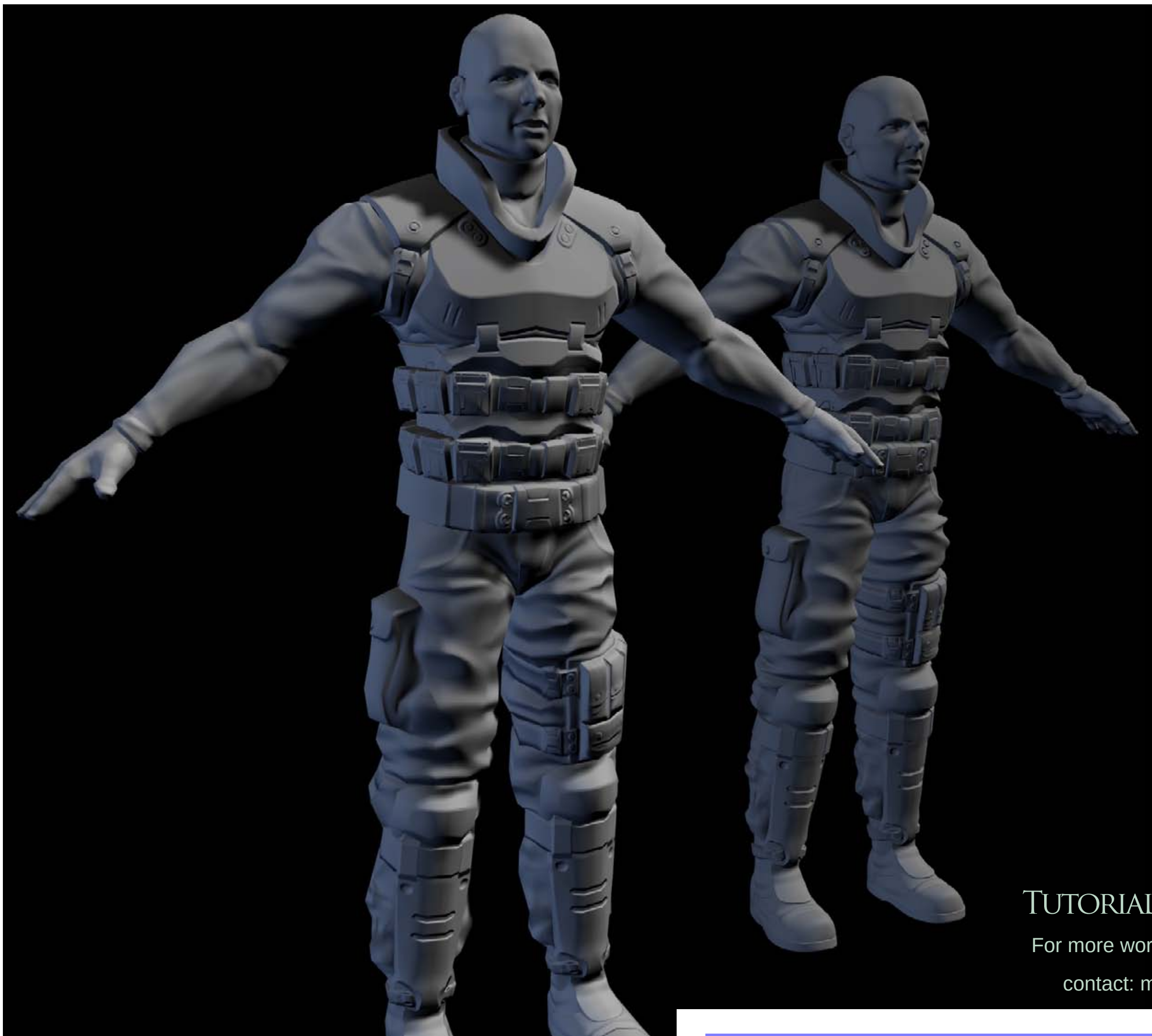


Fig 09

TUTORIAL BY: MISJA BAAS

For more work from this artist please

contact: misjabaas@hotmail.com

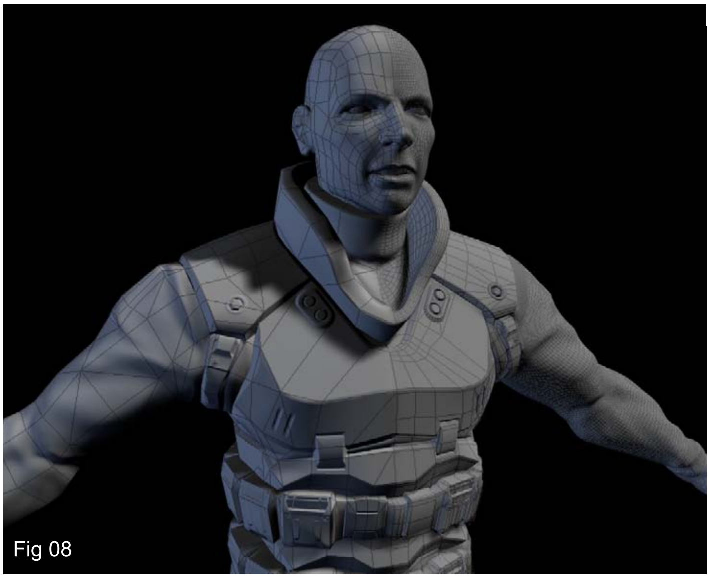


Fig 08

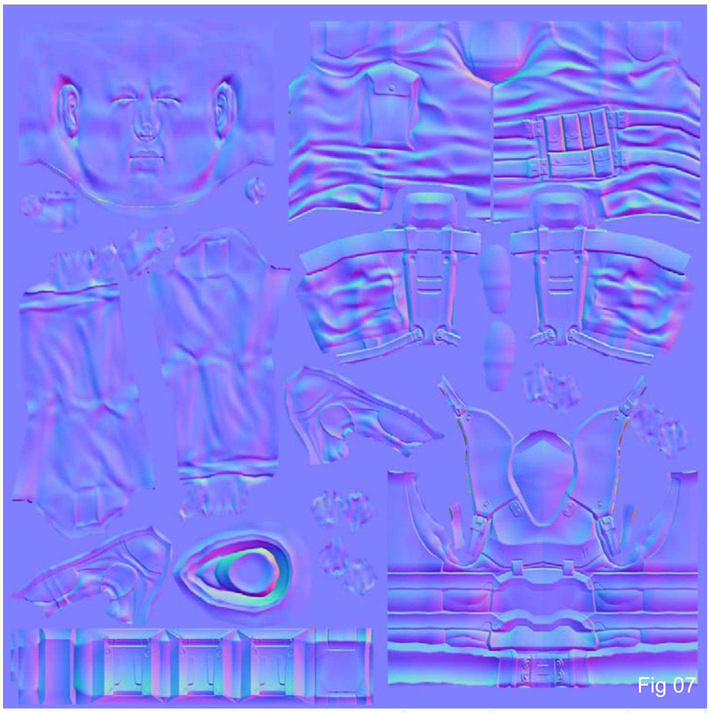


Fig 07

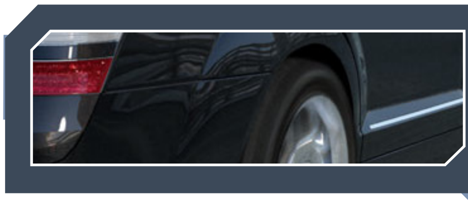
A new dimension
for MOTION
GRAPHICS
MAXON

Swordmaster

Welcome to our ongoing tutorial which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. Over eight months we will be covering how to build, map/unwrap and texture the character.

Mercedes S-Class Millau

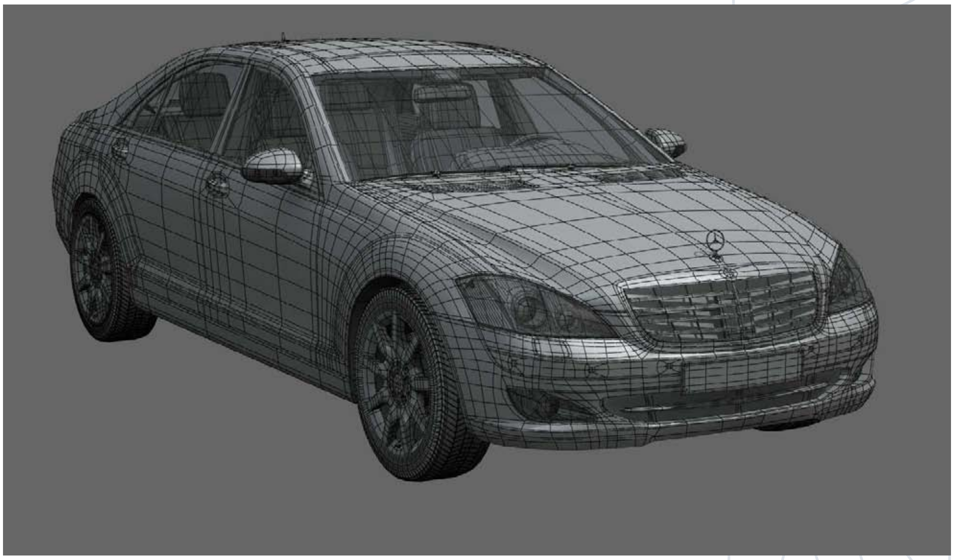
Ali Ismail

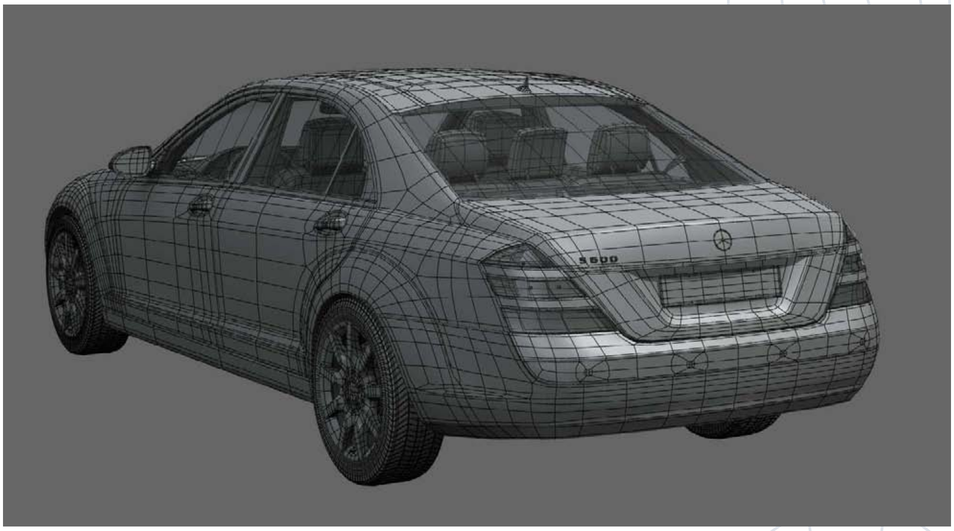


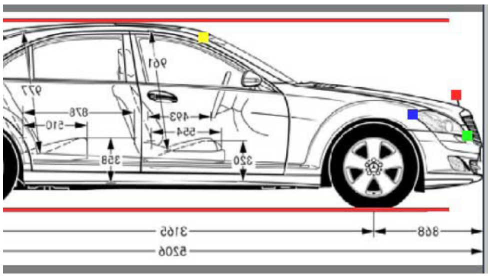
CAR MODELING OVERVIEW AND TIPS

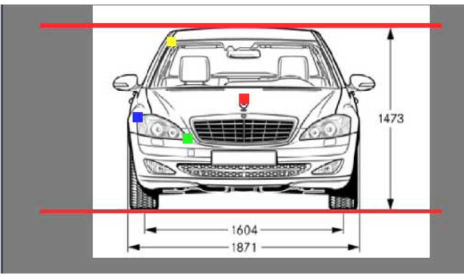
This is not exactly a step by step tutorial about polygon car modeling, it's more of an overview of the process I use and some tips that might help anyone having trouble modeling a car. Although I work in 3dsmax, the process and techniques can be applied to all 3d applications, but this may not apply for one part about spline modeling, which is used only to make the basic polygon mesh, but you can just create the polygons, extrude them or do it any way you like. Well for a start, and I can't stress this enough, but if anyone is just starting out or wants to learn how to model a car *then please* use good blueprints! It's so important to use them, if you are still starting out and can't find blueprints for the car you like the most, check sites such as www.smcars.net or just google it to find the blueprints for the car you want, or order and download brochures from the official sites of the car company. Usually the blueprints come in a single image, It doesn't matter how you extract each view, whether it was in Photoshop or inside your 3d application it doesn't matter, it only matters that you have them in correct scale to each other in your 3d application.

There are many tutorials which give good guidelines about using blueprints. Also it's very important to setup the blueprints properly and as accurately as possible, using reference objects to assist you, light corners for example, wheel badges etc…I may have exaggerated the box reference objects slightly to give them funky colours, but it's only for the purpose of this tutorial. Feel free to do any reference objects in your 3d application as you like, this is only to make sure the blueprints are placed correctly. Some of you may be a bit angry at me for not getting to the point yet, but seriously obtaining blueprints and putting them together accurately is such an important step that sometimes gets neglected, so I must stress this now. Now after you have the blueprints ready, you need to start modeling, at last. This is the only part where it's max related but, as I said before, you can simply create polygons or extrude edges or whatever you like to get a similar basic mesh, as you can see in the later image it's only used to get a mesh like that. Relax it's really no big deal to create a mesh like that in any 3d application, just follow the blueprints and think of a decent wire frame before you create the ploys and you will get it, really it's that simple! If you are having any trouble just look at any finished car wire frames and observe how the edge loops are usually done, it's easy to learn the tools and procedures but it might take time to practice that's all.



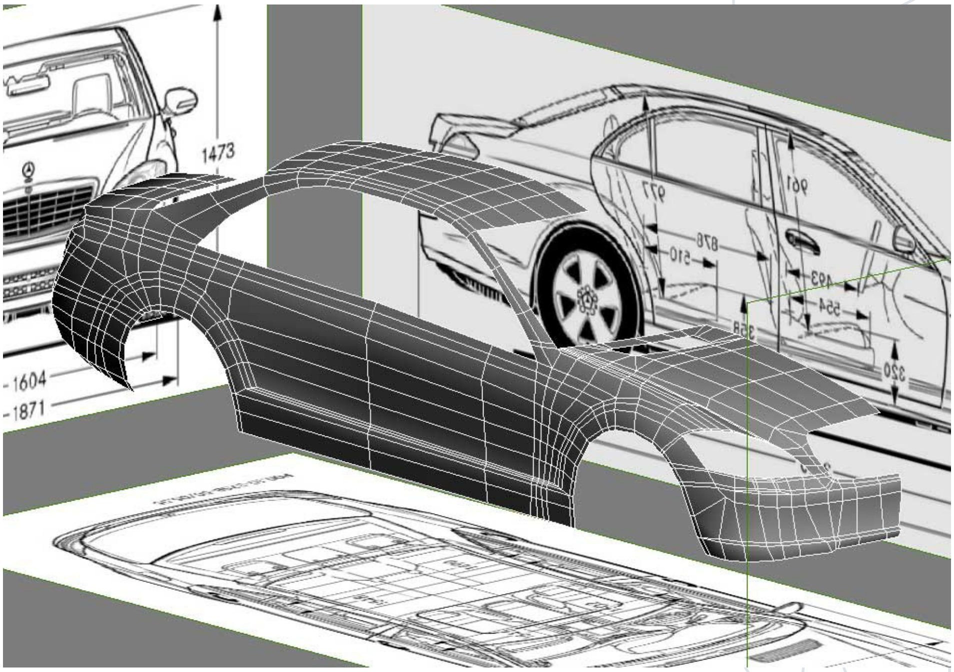


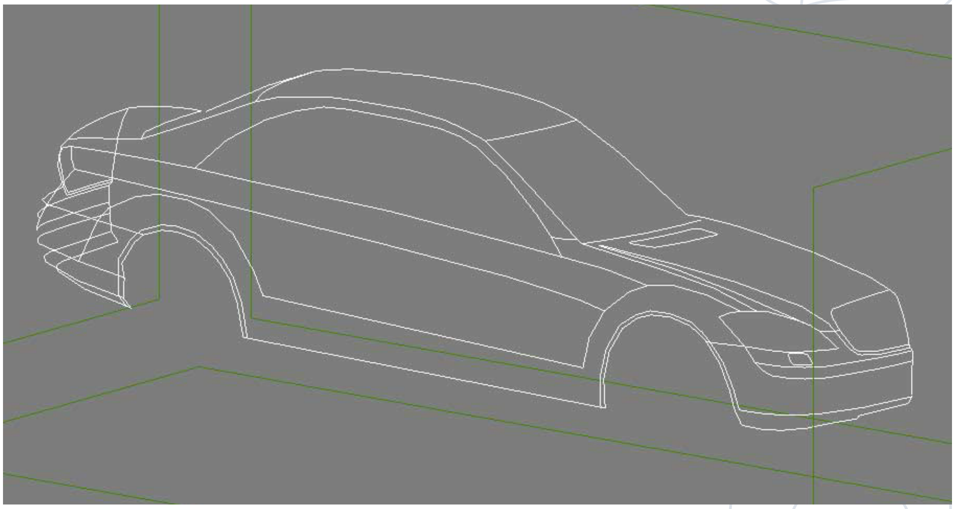


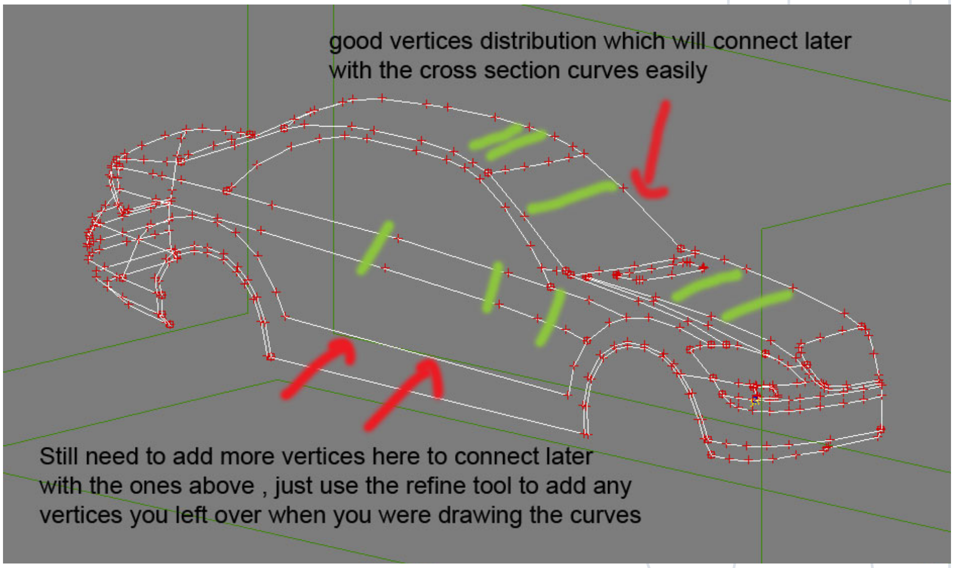


Spline Modeling

Now 'max users', don't be intimidated by spline modeling, it really takes nothing to learn. It could be just a little faster than standard techniques, all you need to do is to draw the splines following the blueprints exactly, in my opinion I think it's better to draw the curves in corner mode; just draw the curves as you see them in the image it really takes no effort, especially if your blueprints are properly placed. I know the previous image looks cool but we really haven't started yet. One more thing to notice about these curves is that the points, or vertices, are aligned in an organised fashion, just check the image (you can also copy splines with the connect option, which will make the cross-section automatically please check your max manual and you will find it all. I don't want to make this tutorial too complicated). Now spline modeling/ surface tools are really simple, just see the image, get the point, only a 4 or 3 sided, to create a surface (vertices or points don't need to be welded, just at the same position). Now you have the main curves which resemble the car and they are accurate, just do the curves which will complete it and make it accept surface modifier to give you the mesh (you should make everything 4 or 3 sided otherwise it will make a hole. After you've made them, just add surface modifier and you will have a nice clean mesh with correct general edge loops. Now the following is how to continue the basic mesh you've created, plus some general tips on things I have notice from that people who are just starting out. The first noticeable thing might be using too many edges, which aren't needed. Please don't add any edge loops unless you *really* need them and it's time for them, try to do the basic shape without all the extra edges because it will be easier to edit. If you make a small mistake and you want to change the look of a certain area in your model and you have too many edges, it will be next to impossible to fix the mesh. Re-doing the mesh entirely

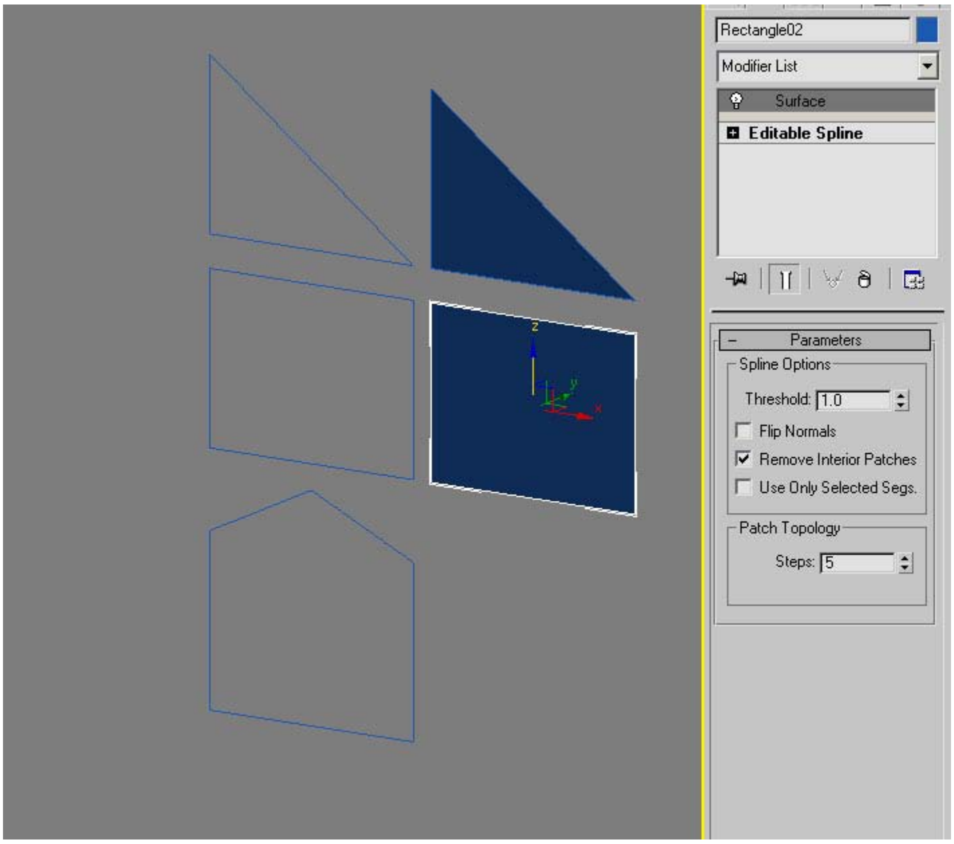






good vertices distribution which will connect later with the cross section curves easily

Still need to add more vertices here to connect later with the ones above , just use the refine tool to add any vertices you left over when you were drawing the curves



Rectangle02

Threshold: 1.0

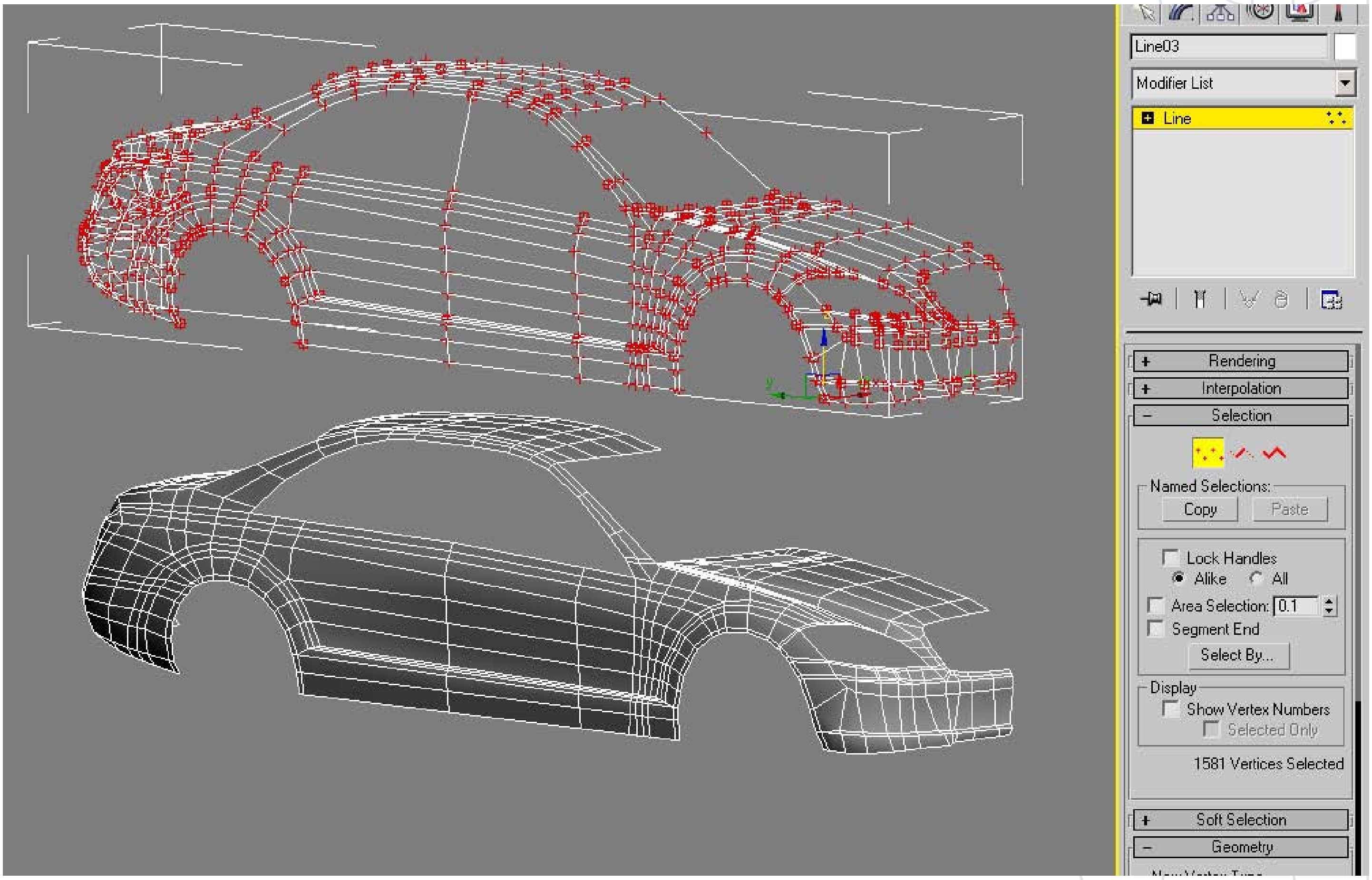
☐ Flip Normals

☑ Remove Interior Patches

☐ Use Only Selected Segs.

Steps: 5

in many cases could be faster than editing a messed up mesh with too many edges. Also, always check how your mesh looks after you add ‘meshsmooth’, it helps you realise what you are doing and if there are any mistakes. Let’s say you managed to get a nice clean mesh but it hasn’t got much details, only the basic form that we have created, it could be made easily by any 3d software even by creating each poly and it’s very easy to do. Now some might leave their mesh like that and add meshsmooth to it, but it will scream “I am box modeled”, and it will have no sharp edges, etc. The image below shows why you need to add edge loops to get the look you want. In most cases and I know the previous image may look funny and very basic, but I always get asked by people who want to model a high res realistic car and they still don’t test with the basics and keep asking why their mesh looks like clay with no sharp edges at the right places, so please forgive me for this.



Line03

☐ Lock Handles

● Alike ○ All

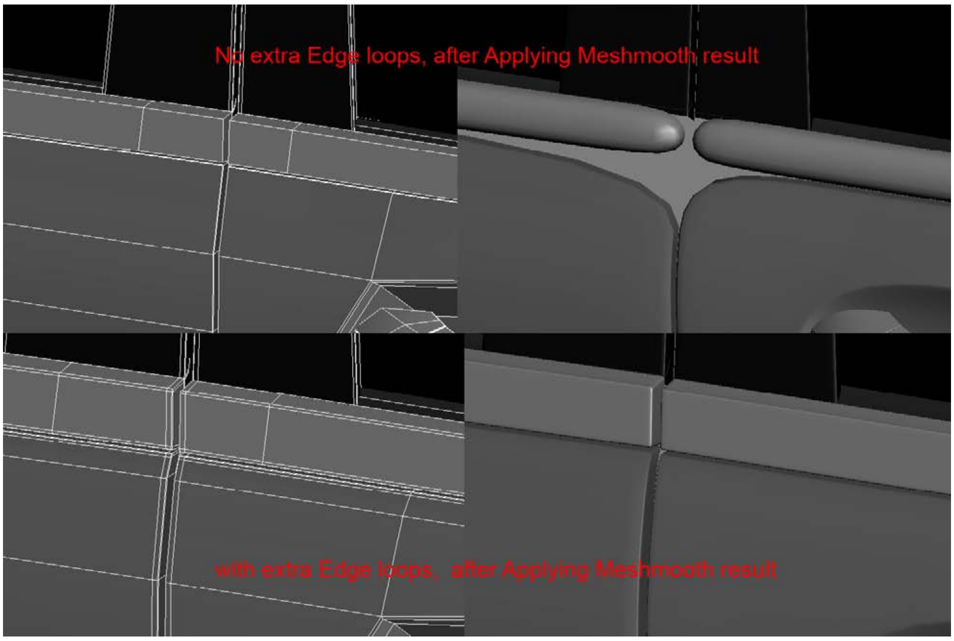
☐ Area Selection: 0.1

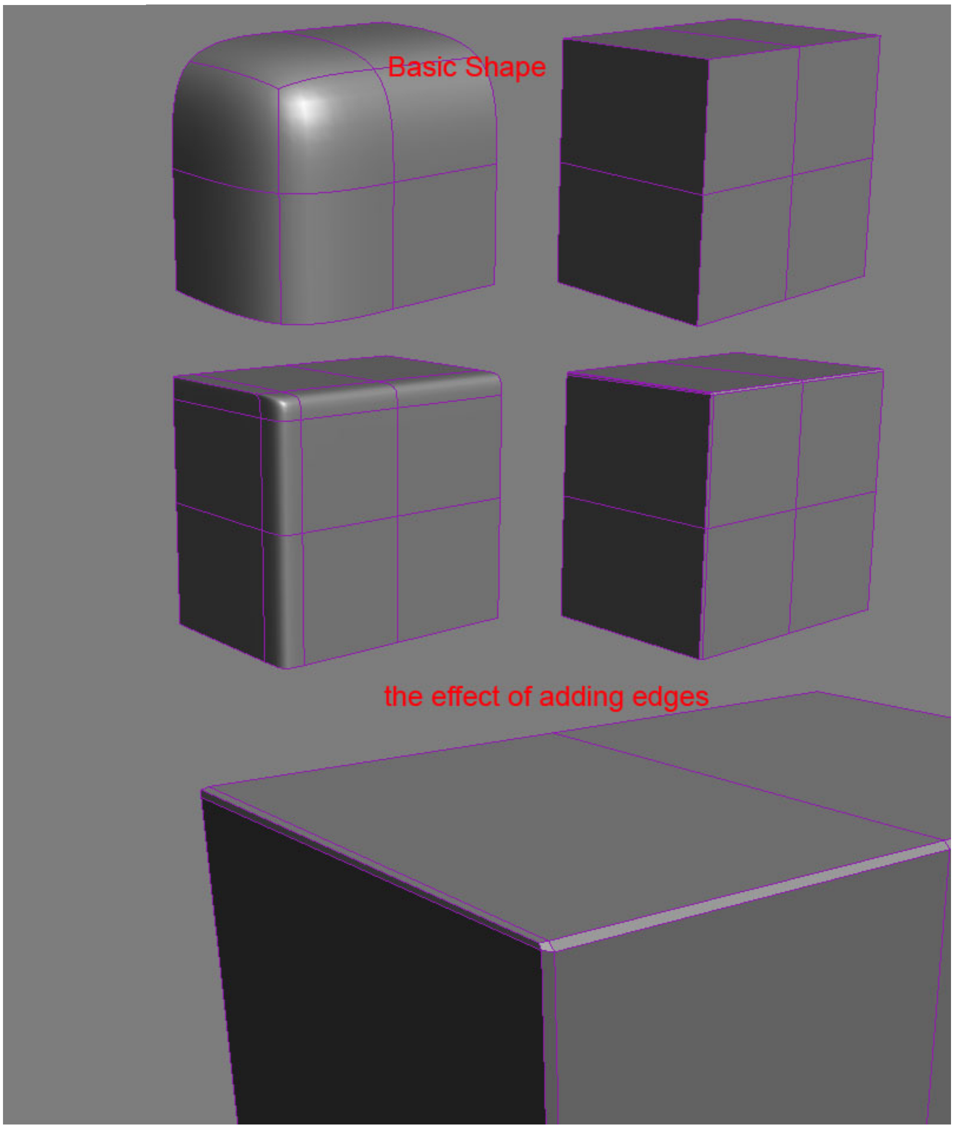
☐ Segment End

☐ Show Vertex Numbers

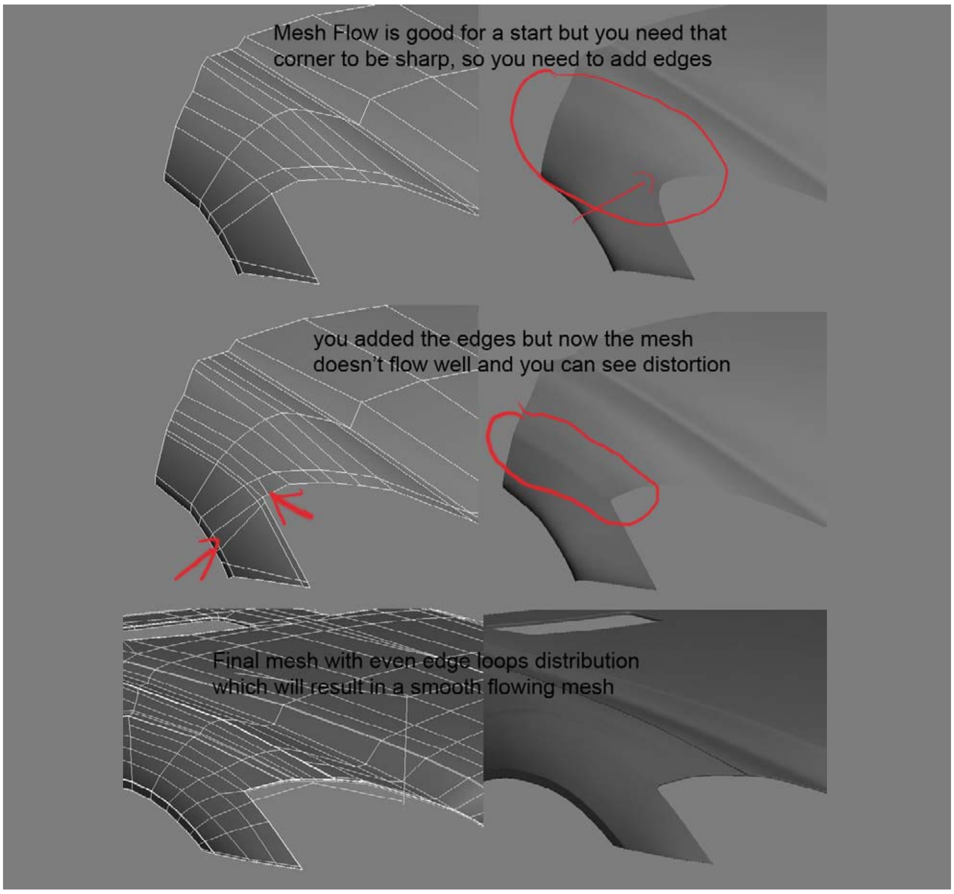
☐ Selected Only

1581 Vertices Selected

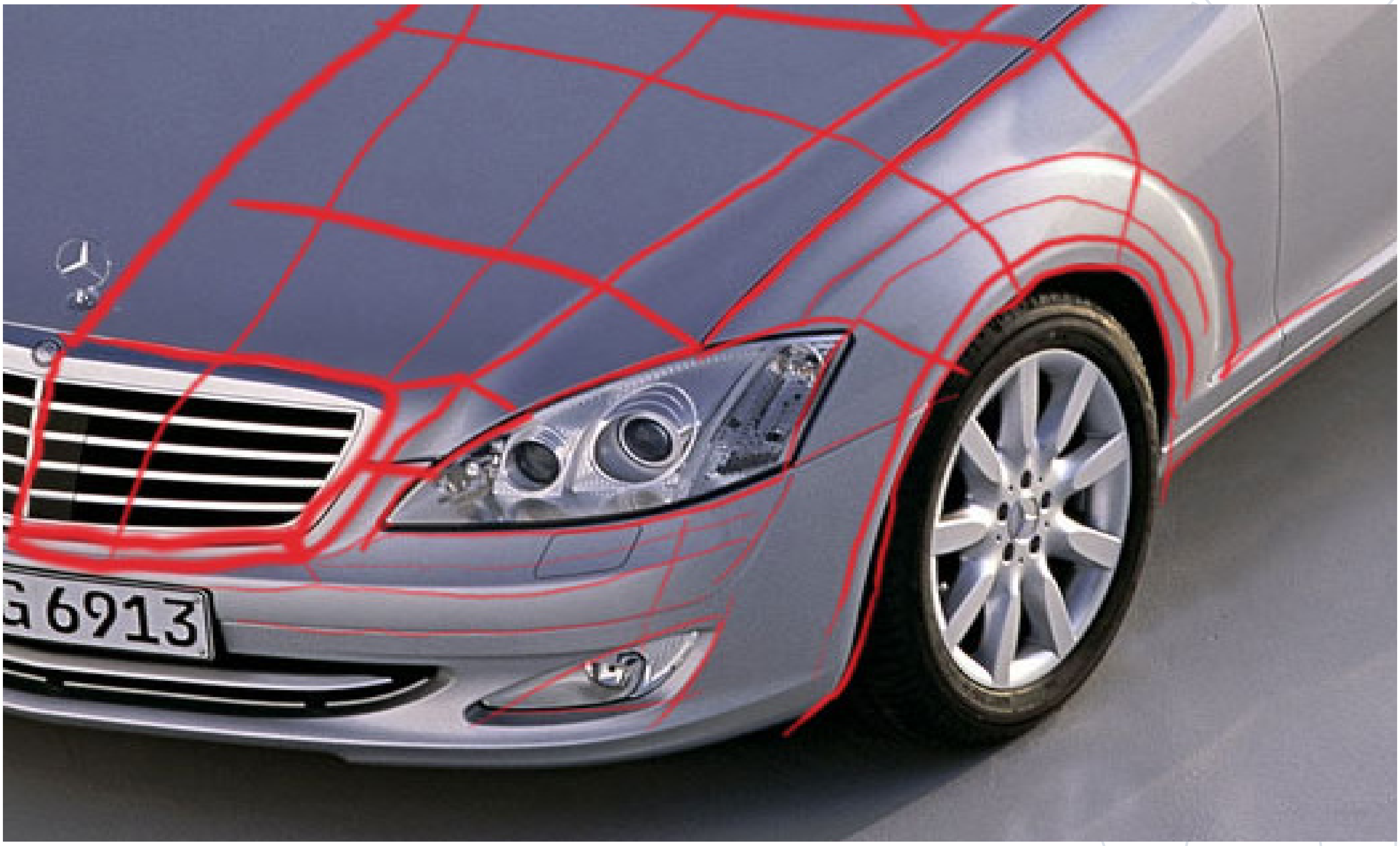

No extra Edge loops, after Applying Meshmooth result
with extra Edge loops, after Applying Meshmooth result



After you start adding edge loops and details, things sometimes start to turn the other way around; your mesh becomes messy with no decent flow and doesn't feel smooth, I take for example this part of a model I made at an early stage, I will try to demonstrate what I mean. Now you could, in some cases avoid adding the edge loops all over by trying to do it smart to get the sharpness you want with as few edges as you can. Try to make an even distribution of edges to fix the areas which gets messed up as a result of adding edges, even if it means adding even more edges, but please try to understand how mesh smooth works when you add edges and anticipate what effect they will have. By the way if anyone found any difficulties doing this mesh, you he can check wire frames of finished cars and try to learn from them, or you can use your tablet to draw a basic wireframe on any image similar to the image below. If you don't have a tablet, just print the image out and draw on it using your pencil, this image will help you realise how to start modeling it. As you can see from my rough drawing, anything will do. I don't draw the wireframe now but when I was starting out learning about edge loops it helped me, you can do as I do now, just look at the model and visualize how you are going to do the edge loops and it will make your modeling faster. One more thing, it's better to check your mesh for any non quad faces, you can see these directly on your smoothed mesh (it will simply look funny at any area with non quads). To check it more easily and quickly, just use the 'check non quad script' (if you aren't using max look for a similar option in your application or, if you can, download a script from the internet). Just type "Select Non Quad" at the maxscript reference in 3dsmax and you will find a tutorial called 'how to select non quad polygons,' or select that tutorial from the 'how to' tutorial menu. In a minute, you will have it ready (no need to learn scripts just copy and paste the script and see the instructions of using it in the tutorial).


Mesh Flow is good for a start but you need that corner to be sharp, so you need to add edges
you added the edges but now the mesh doesn't flow well and you can see distortion
Final mesh with even edge loops distribution which will result in a smooth flowing mesh

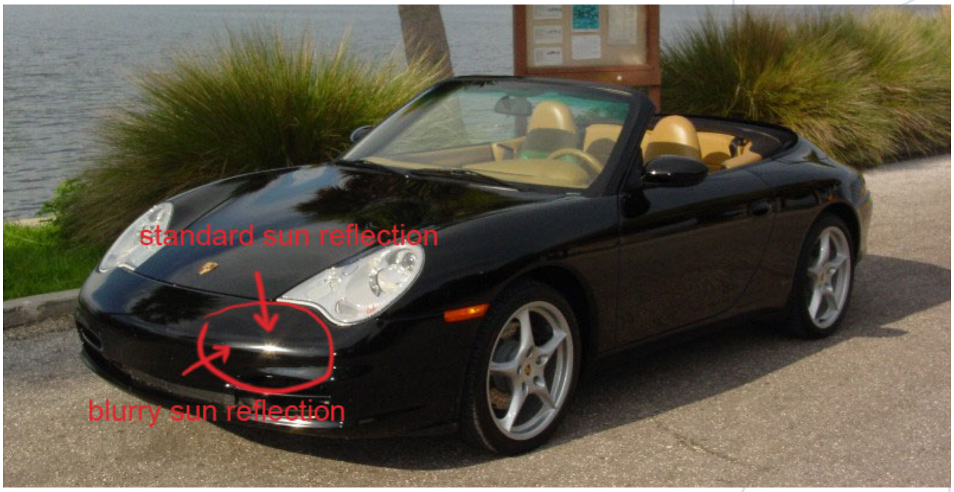
That's all for modeling for now!



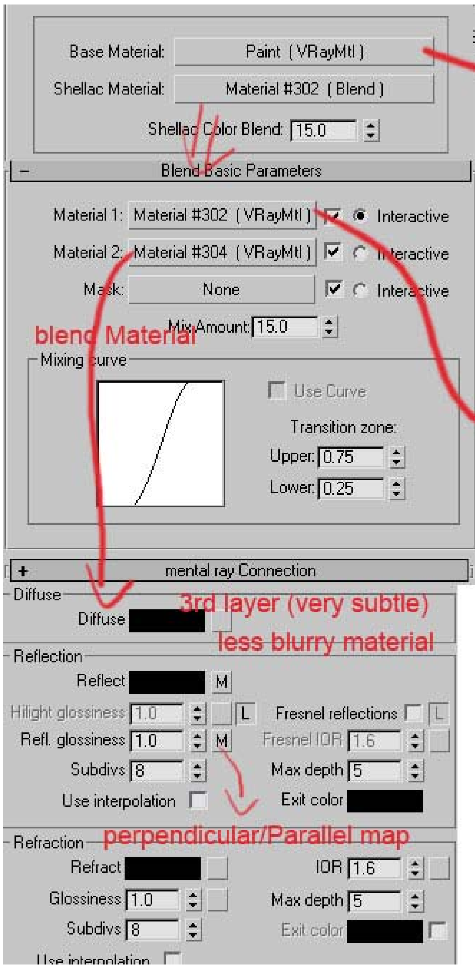
CAR RENDERING TUTORIAL

This tutorial will be about rendering a car in 2 different styles. I used VRay to render, but you can do the same in all renders, it's the same principle. Firstly, I would like to thank Dominick Cliff, Who made a very short tutorial way back about rendering a car, but it helped me to understand the importance of the surrounding environment for reflections. The cool thing about HDRI is that it makes life a lot easier, it stores both light information and the environment to reflect as well, which makes sense. The most crucial thing to take care about when using an HDRI is that it should fit with the background image or scene you are using if it wasn't taken from the HDRI it self. For example, you obviously can't just put a car on a white background with an HDRI reflecting a beach, it will look apparent even if the reflections on the car and all the render settings and materials are perfect. In some cases when the HDRI is similar to your scene, but not enough, you can try to put the HDRI in a mix map to try to add a different tone of colour to it and play with the light value of the HDRI to make it as close as possible to your scene, but in studio style or other types of renders or scenes with no similar HDRI maps or closed sets etc, it becomes hard to use an HDRI which will give you what you want. There are ready HDRIs in white and black colour which are prepared to simulate lights in a studio, but they can't always give you the results you're after. That's why for studio renders I always depend mainly on lights or reflection from the objects that I make. I will start off with the material so you can test the lights on a good material. Now the material or shader key to any successful car paint should be multilayer. In order to make car paint more realistic, it's not enough to put in just one layer with fresnel reflections. When you observe car paint in real life, and especially when there is intense sun on it you see it reflecting the sunlight but you can also see the sun being reflected in a glossy blurred reflection. This is why we need to make the 3d car paint in more than one layer. For people using brazil renderer or mental ray in maya, you have a ready car paint material/ shader to use. These will include multilayer reflection and more details by default, it will be easier to use the car paint materials there. Anyway as you can see in the image the reflection will come in different layers. Just put a base material with it to make the most of the material and a subtle, but needed, other material or 2 to simulate the blurry reflections layer. For this I used a shellac material, the first main slot is a simple fresnel reflecting material, the second slot is actually a blend material containing a blurry reflections material and a very blurry material (so its actually 3 materials altogether but you get the idea). By blurry I mean 'less glossy' material (a value of 1 glossiness will make a shiny surface,

a value of 0 will generate an extremely blurry surface). You could generate glossy surfaces by using a bump map (tiny bumps on the surface of the objects make them glossy in the first place, so the shape of the bumps will determine how the surface is blurred) but it's faster and easier to just play with glossiness parameter.



Here are the material settings:



Base Material: Paint (VRayMtl)
Shellac Material: Material #302 (Blend)
Shellac Color Blend: 15.0

– Blend Basic Parameters

Material 1: Material #302 (VRayMtl) ☑ ● Interactive
Material 2: Material #304 (VRayMtl) ☑ ○ Interactive
Mask: None ☑ ○ Interactive
Mix Amount: 15.0

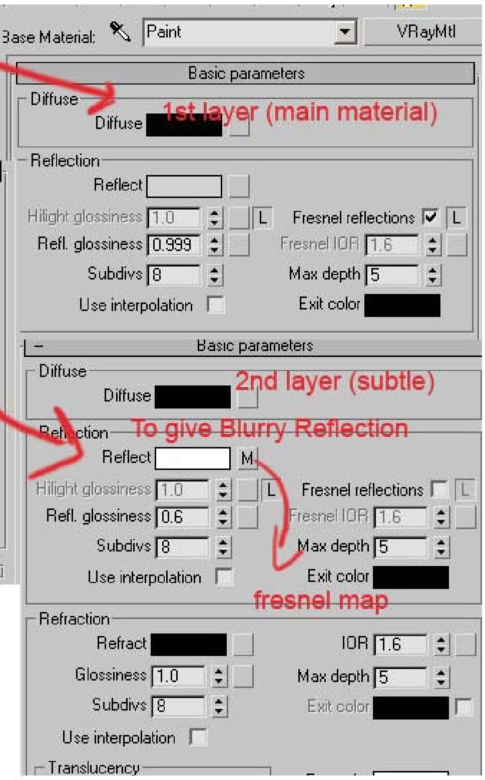
Mixing curve
☐ Use Curve
Transition zone:
Upper: 0.75
Lower: 0.25

+ mental ray Connection

Diffuse
Diffuse ■

Reflection
Reflect ■ M
Hilight glossiness 1.0 L
Fresnel reflections ☐ L
Refl. glossiness 1.0 M
Fresnel IOR 1.6
Subdivs 8
Max depth 5
Use interpolation ☐
Exit color ■

Refraction
Refract ■
IOR 1.6
Glossiness 1.0
Max depth 5
Subdivs 8
Exit color ■ ☐
Use interpolation ☐



Base Material: Paint VRayMtl

Basic parameters

Diffuse
Diffuse ■

Reflection
Reflect
Hilight glossiness 1.0 L
Fresnel reflections ☑ L
Refl. glossiness 0.999
Fresnel IOR 1.6
Subdivs 8
Max depth 5
Use interpolation ☐
Exit color ■

– Basic parameters

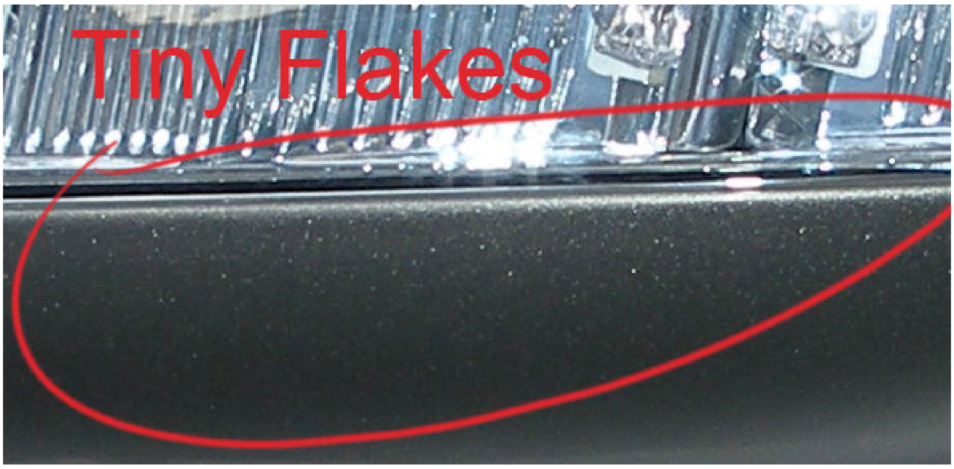
Diffuse
Diffuse ■

Reflection
Reflect M
Hilight glossiness 1.0 L
Fresnel reflections ☐ L
Refl. glossiness 0.6
Fresnel IOR 1.6
Subdivs 8
Max depth 5
Use interpolation ☐
Exit color ■

Refraction
Refract ■
IOR 1.6
Glossiness 1.0
Max depth 5
Subdivs 8
Exit color ■ ☐
Use interpolation ☐

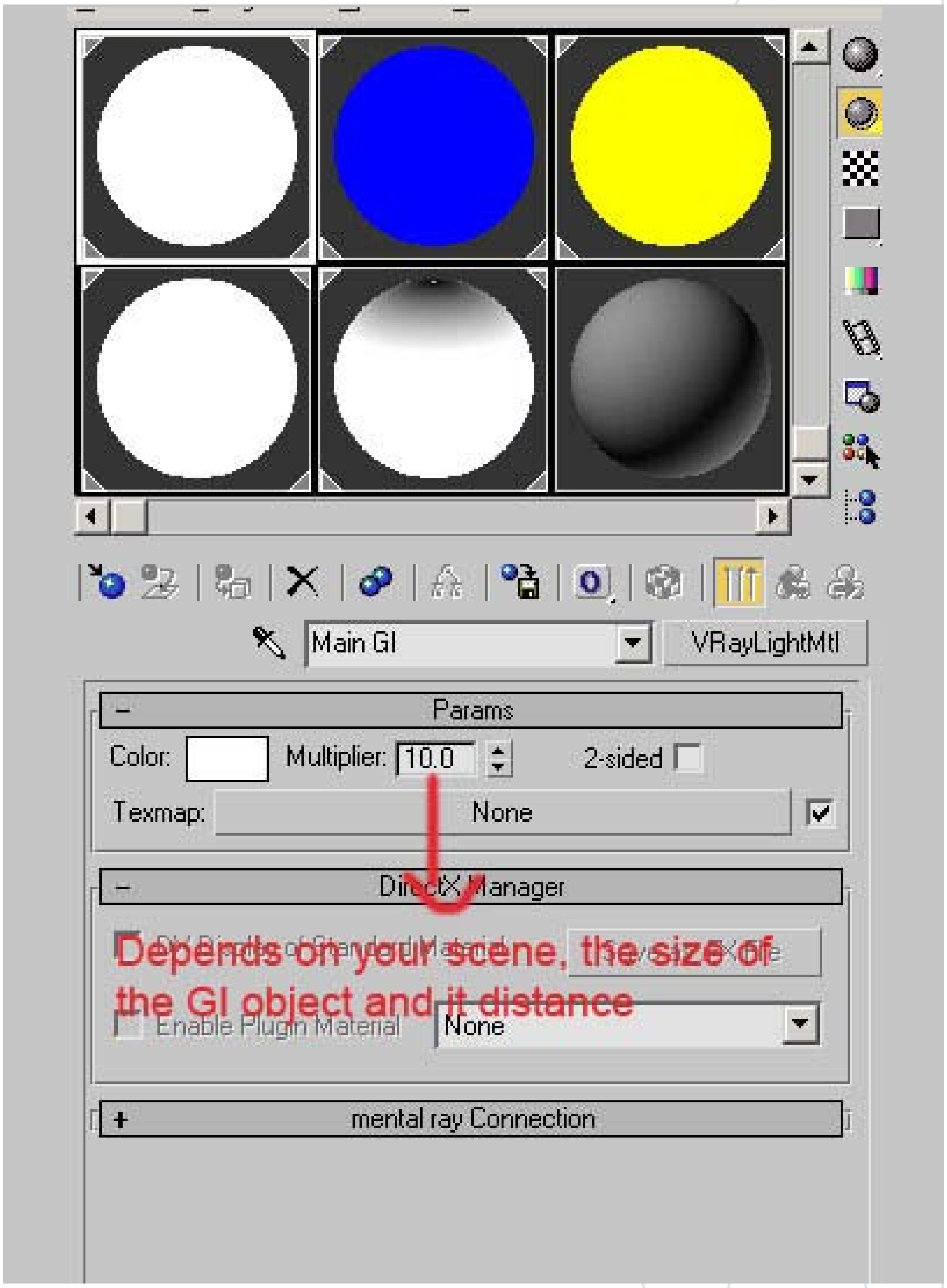
Translucency

One thing to mention, is that my material is not coloured since its black, obviously, but just by changing the diffuse colour of the main material you will be able to have any colour you want. You can try putting different colours in the less glossy materials as well for different effects. The other thing is that I didn't simulate the sparkling effect of metallic car paint flecks. The reason is that, after observing and checking reference images, I noticed that unless you are doing a very high res extreme close-up image for a car reflecting an HDRI or scene, you can do without it, by adding another layer for: A little trick I used was to not increase the subdiv's of the reflective glossiness to give the surface just a bit of a grainy look. Here are car paint flecks in action (reference images), don't forget that car paints come in different variations; some have flip paint (cool paint which changes colour depending on your viewing angle) and many more, but if you can understand how it works you can simply apply it all using blend, shellac materials and different falloff maps. The above image is of a car Mirror flicker (you can imagine how much close-up it is. Rendering a studio style render the concept is really simple. Every rendering software has the ability to make objects by generating GI, just make as many objects as you want and think of them as your light sources in your own studio. You can put standard lights in instead of objects as well, but objects are usually easier to change their shapes and looks, and you can give them the same GI material or change each object is properties separately. You can also make the same results using lights, but I find it easier to do with objects since we are going to copy/duplicate them a lot. One thing to mention is that bigger objects will generate more GI than smaller ones by default in VRay, Also, objects lighting effects will decrease when it's far away and will increase when it's close (Decay). Now after you have made giant boxes, spheres, cylinders and what ever you think would be suitable for lights in a studio simply give them a GI material, (sometimes a properly placed single box can be enough for a great render). You need to play with the GI material settings until you are happy, for my final results I used a VRayLightMtl with a multiplier of 3 and gradient ramps for the texture of the giant boxes, plus different material settings for the sphere and



other objects. The images show the results obtained from different GI and object reflections. The first one is with the standard giant box on top of the car, the second is with 3 thinner boxes placed around the car. Try playing around with different layouts. The final one is with multiple giant thin boxes and a lot of small spheres scattered around randomly and some spheres organised as if they where lights on top of the car and a few cylinder with less GI multiplier. I also made the scattered spheres have different colours. Now if you hit render and still didn't like the results you could try adding a few lights, it doesn't matter much if they are vray lights or std max lights. It might be partially caused by the decay property of the objects and the fact that the shadows will be softer than what you want if you have too many GI objects.

To make the image more interesting you could add an HDRI with a subtle effect to give the feeling of a busy background, which adds to the realism, but you have to make it very subtle so that you can barely notice it, so that it doesn't take over the reflections you worked so hard to get.


Main GI | VRayLightMtl

Params

Color: Multiplier: 10.0 2-sided ☐

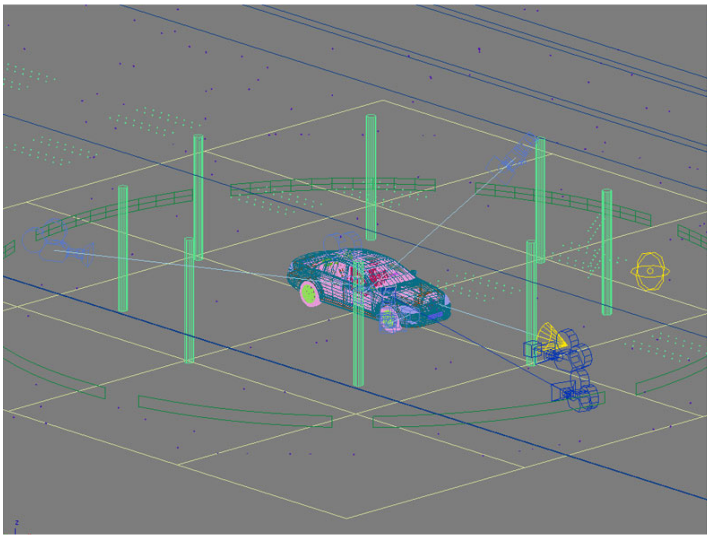
Texmap: None ☑

DirectX Manager

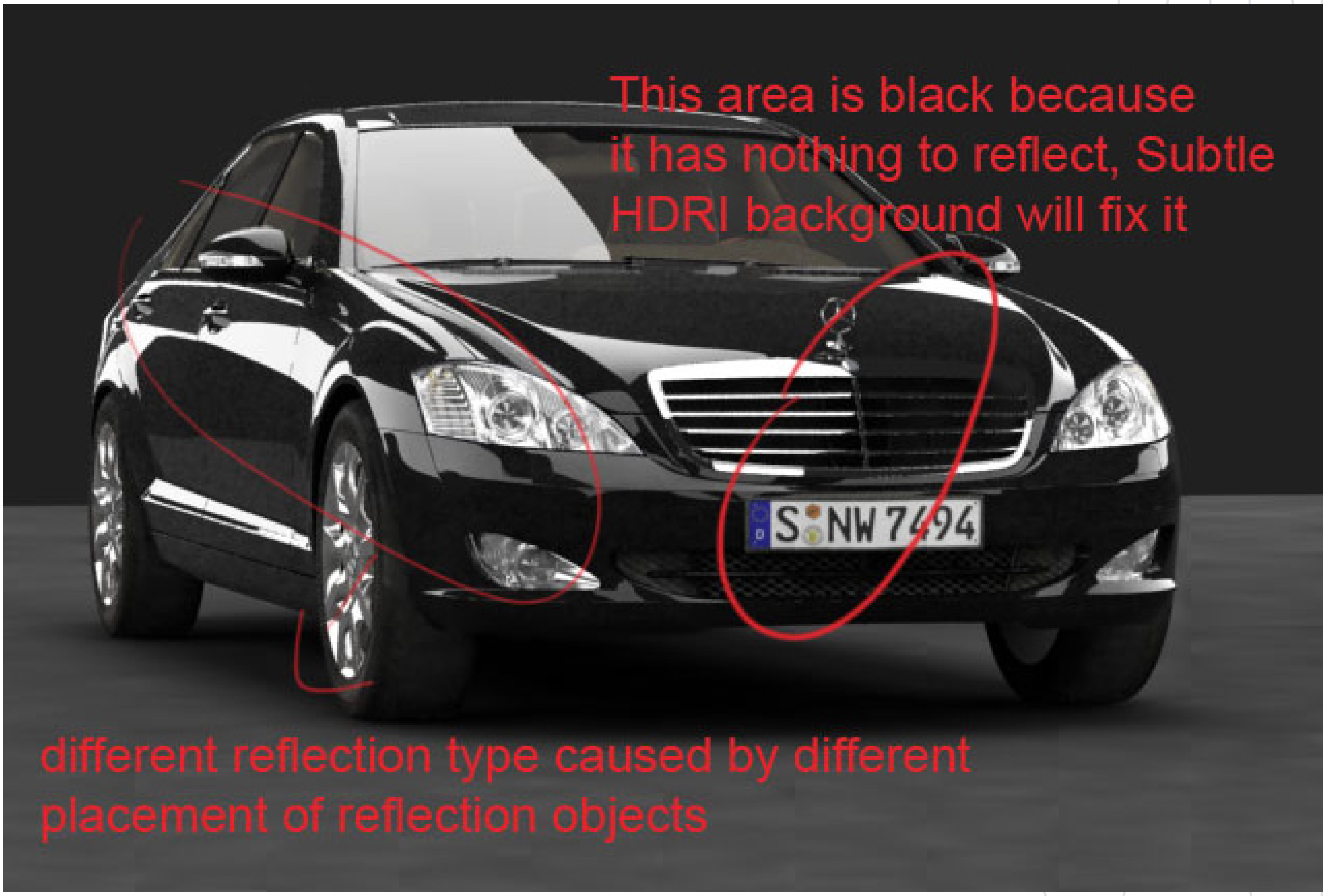
☐ Enable Plugin Material None

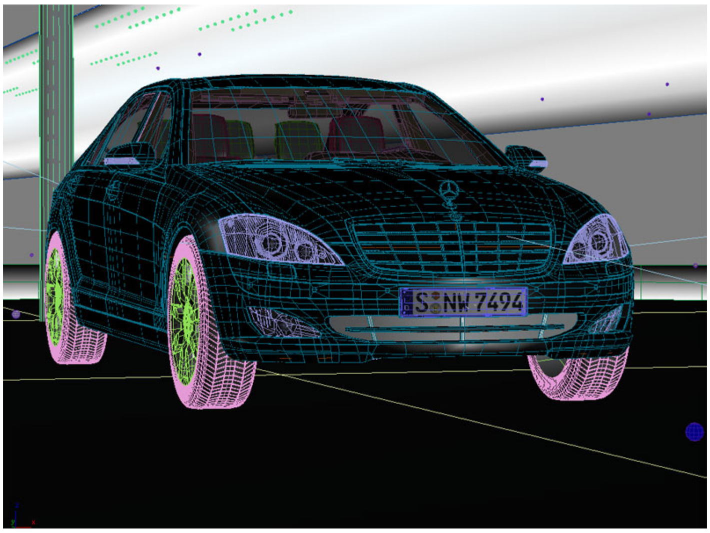
+ mental ray Connection

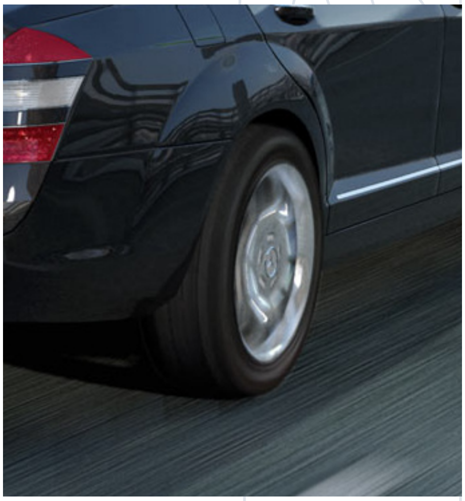
Depends on your scene, the size of the GI object and it distance

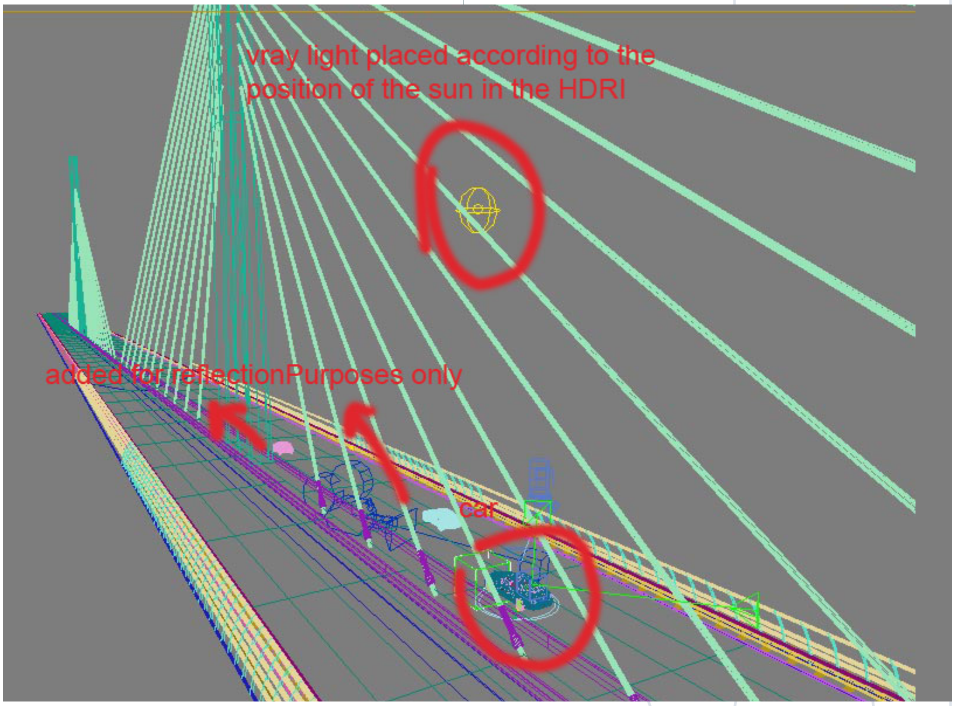


Final scene screenshot


This area is black because it has nothing to reflect, Subtle HDRI background will fix it
different reflection type caused by different placement of reflection objects






vray light placed according to the position of the sun in the HDRI
added for reflectionPurposes only
car

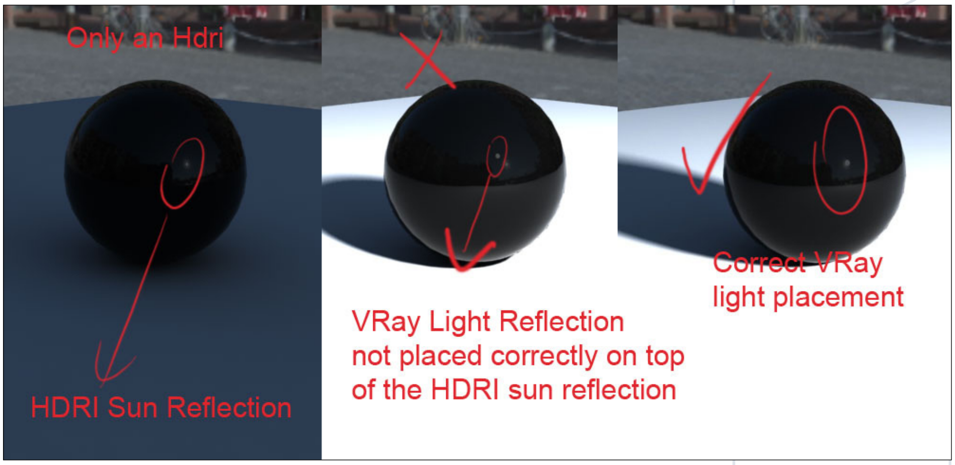
RENDERING A CAR IN A SCENE

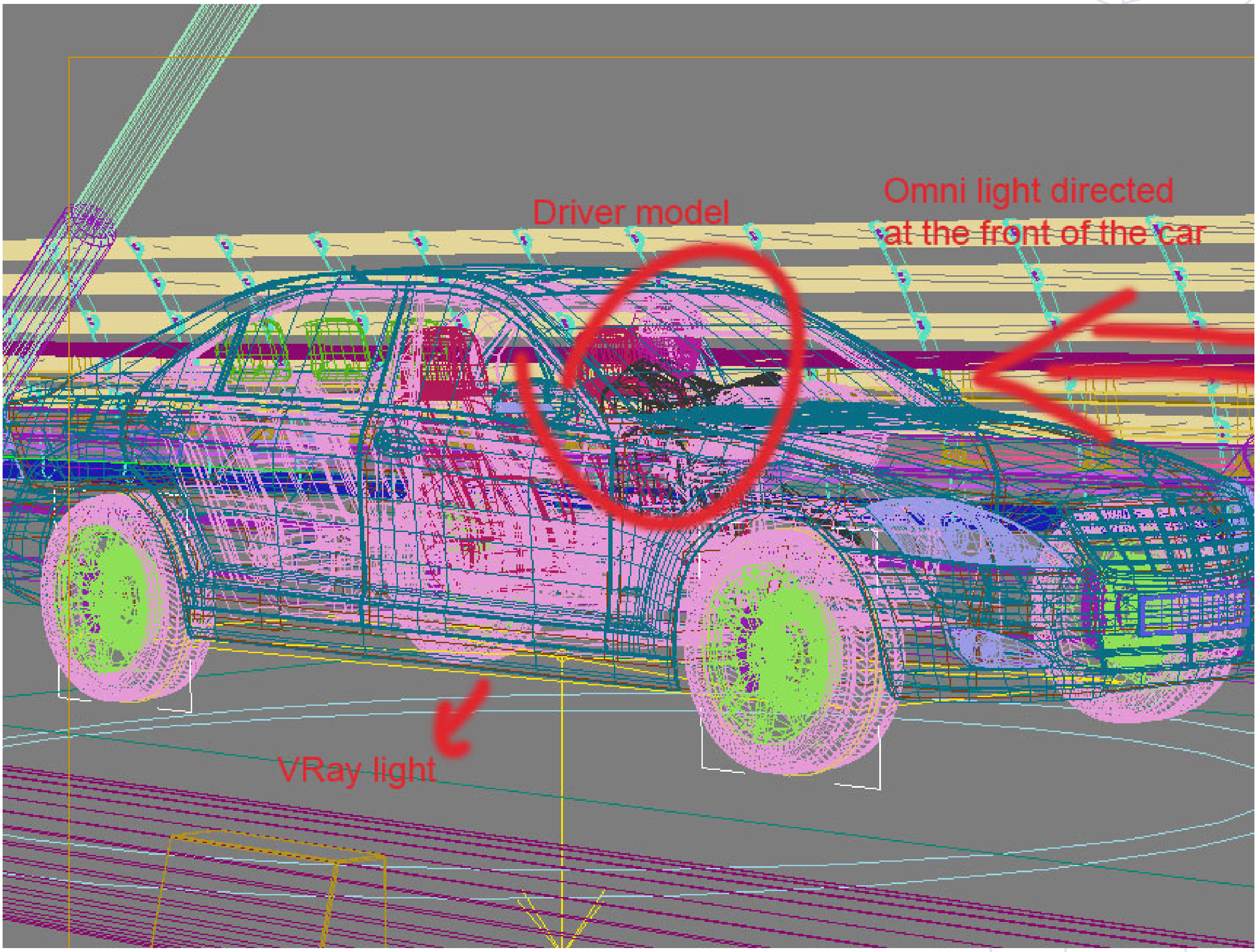
It's all the same basics (a good environment with a lighting system that's consistent with it). You can basically just put an HDRI to be used for the reflection environment and sky light, but the shadows will be too soft if you depend on the HDRI alone. So, you can just put light sources similar to the HDRI has to supplement it. Basically, an omni or vray light placed in the scene to supplement the sun in the HDRI image. For positioning light you can just put the HDRI image, as visible in the viewport (just click alt+b and place it there for instance) and To get the exact position of the light as the sun in the

HDRI, to give you more powerful lightning and sharper shadows, use a test sphere.

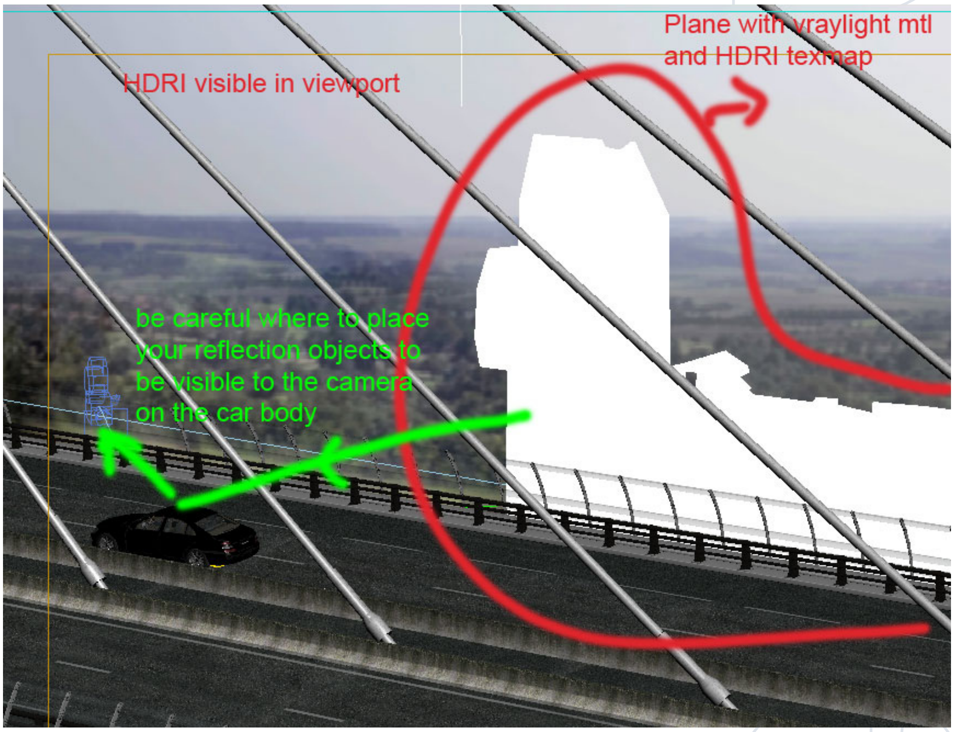
Just place a reflecting sphere and the HDRI as background, render an image, and you will see the light isn't exactly positioned to be instead of the sun in the HDRI, so move the light until you have the exact position of the light as the sun. Now after you have the light positioned of the sun and HDRI, start playing with the parameters until you have something you like. Add a few lights if you need to complete it .lighting in some of the dark areas which increasing the GI would be costly to reach (for example, underneath the car, or if you wanted to increase the lightning in front of the car, just place a light in front of it).

Try to add object to your scene for reflections. If you have the time and thought the HDRI wasn't enough at one area (or if you are sick like me) You could do as I do and add a few lowpoly cars which I have from an old project, as if they are travelling at the bridge scene to add tiny reflections. When placing the HDRI I liked the lighting effect given by a particular one for my bridge scene, but the reflections weren't as great as I wanted them to be, so I made a plane object and gave it a new Vray GI material (vraylightmtl), and the texture map for it was


Only an Hdri
HDRI Sun Reflection
VRay Light Reflection not placed correctly on top of the HDRI sun reflection
Correct VRay light placement



another HDRI. I liked its reflection, just as the image, and I was very careful where to place it so I can get it to reflect on the car body, (you can give it red material for example just to see how its reflecting then give it the texture back). Unfortunately, in max or vray it's still not featured to get strong lights to reflect and show rays which would help increase the realism, but for now you can try to add it in later post work. Although the principle for rendering a car in a scene or as a studio render are simple but what makes the difference is each little parameter you need to just keep comparing the renders you have with a real photo with similar conditions to compare and fix what ever you think makes the image look unrealistic.


HDRI visible in viewport
Plane with vraylight mtl and HDRI texmap
be careful where to place your reflection objects to be visible to the camera on the car body

ALI ISMAIL

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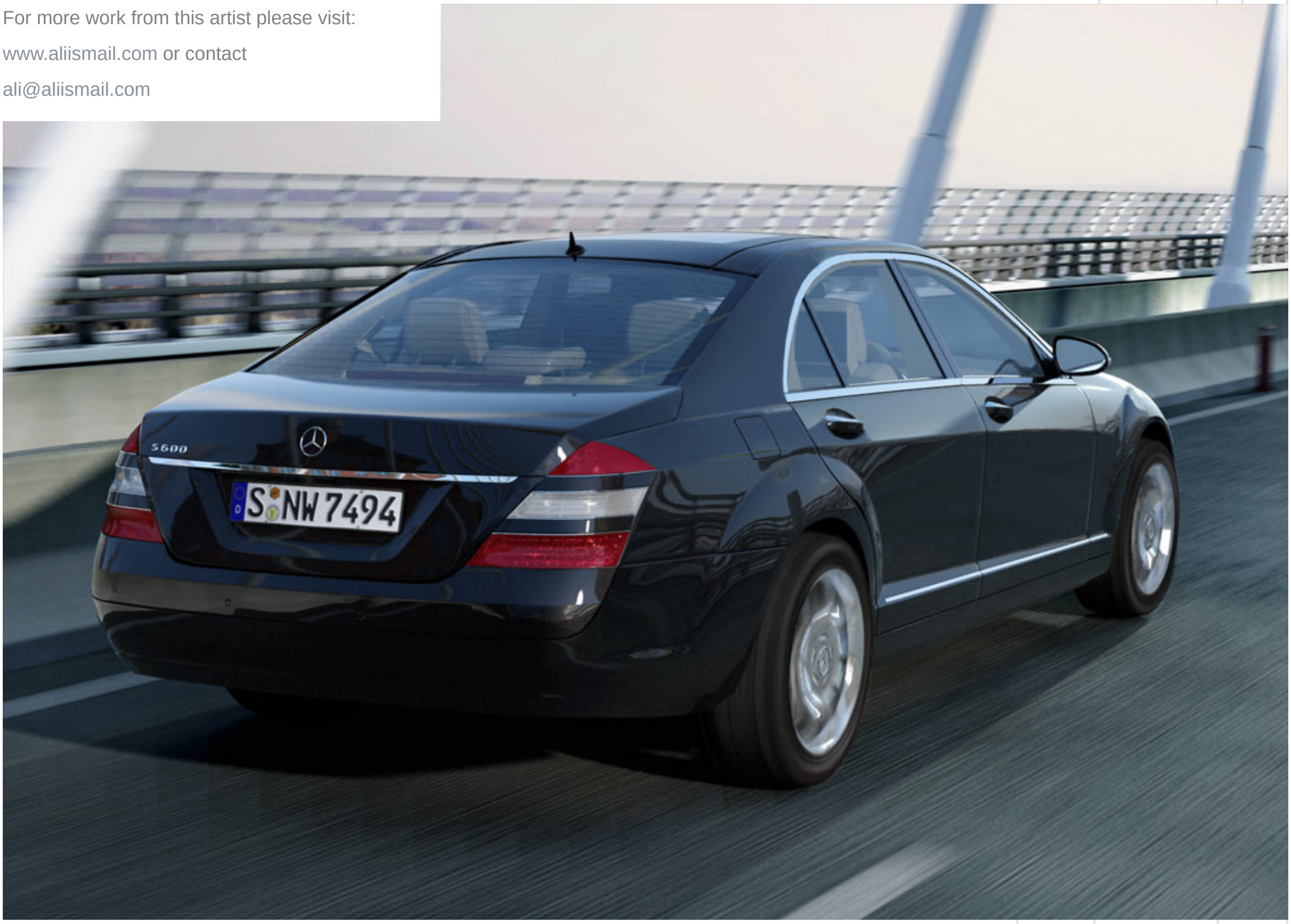

NEXT MONTH

in 3dcreative

INTERVIEWS

Liam Kemp
Erick Miller
Tara Kuzma

TUTORIALS

Swordmaster Part 5
Modeling the Clothing and Hair

The Science of Colour
part 3 by Richard Minh Le

Texturing Masterclass
Texturing a Cartoon & Stylised character part 2 of 3

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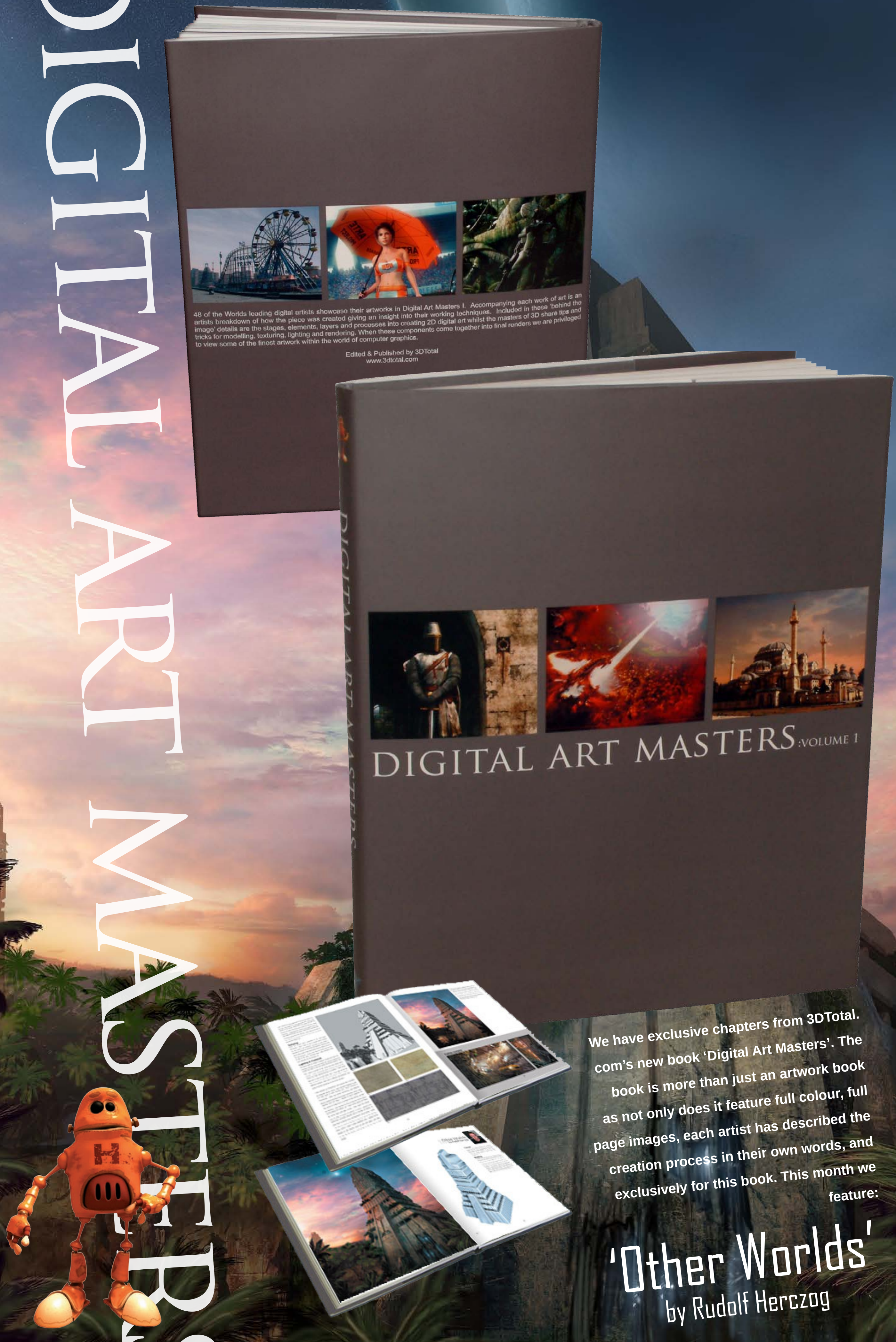

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We have exclusive chapters from 3DTotal.com's new book 'Digital Art Masters'. The book is more than just an artwork book as not only does it feature full colour, full page images, each artist has described the creation process in their own words, and exclusively for this book. This month we feature:

'Other Worlds'

by Rudolf Herczog

fantasy

Other Worlds

by Rudolf Herczog

Concept

I've always loved ancient architecture, so I decided to place a very old, yet living civilisation in an off world environment, and the inspiration for this scene came from the Hanging Gardens of Babylon and Aztec architecture.

Modelling

I started out by going through a lot of reference shots of old temples, and picked up some ideas on how I wanted the tower to look. With Cinema 4D, I then used box modelling to create the base shape for the tower. Once that was done, I used the extrude tools to cut out some "windows" in the structure. These are not exactly real windows, considering the size, but pure decoration to give the tower a little more detail. I also made a few thin gaps, to give room for some tower lights later on (1).

fig 1

These Shots of the book pages are full resolution and can be read by zooming in.

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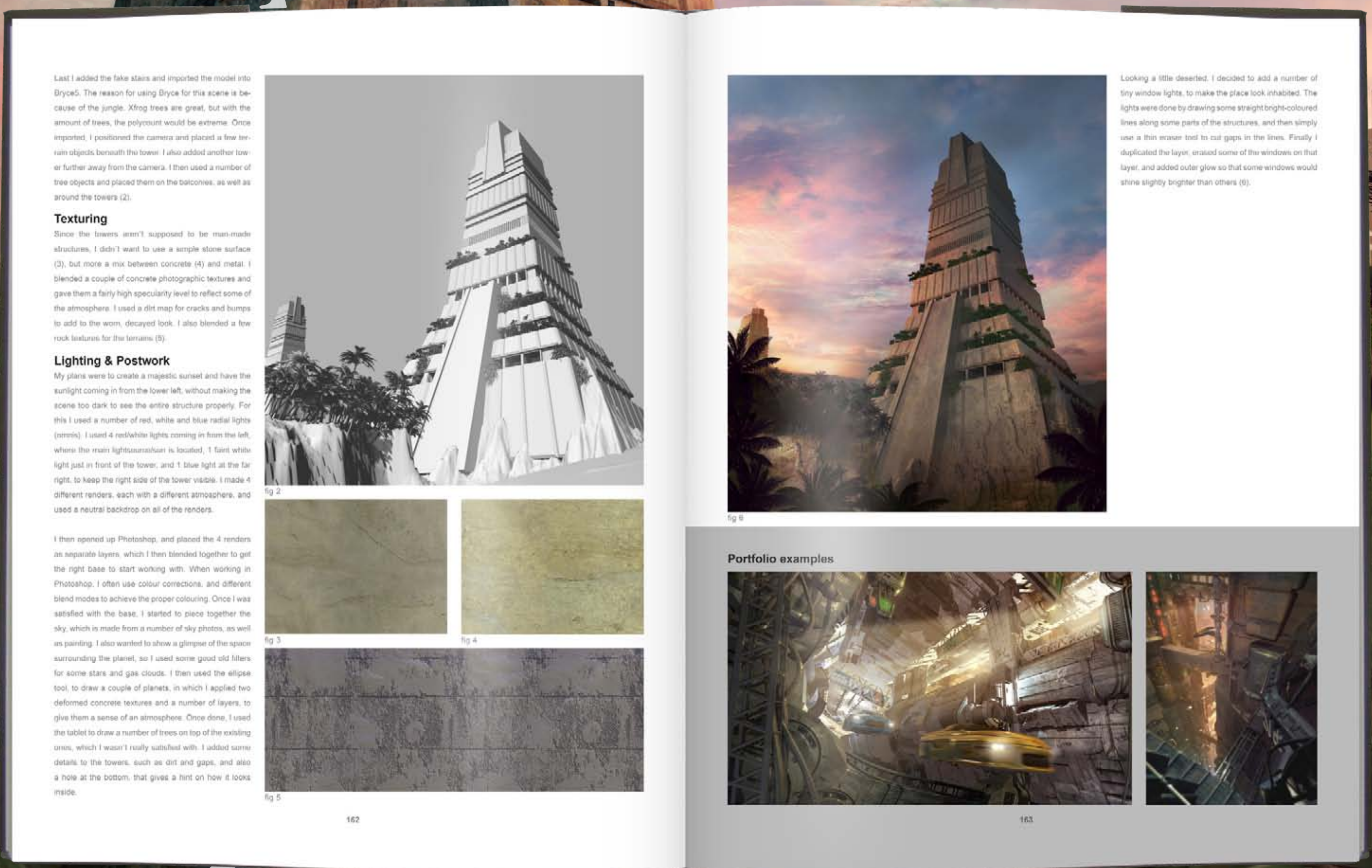


Last I added the fake stairs and imported the model into Bryce5. The reason for using Bryce for this scene is because of the jungle. Xfrog trees are great, but with the amount of trees, the polycount would be extreme. Once imported, I positioned the camera and placed a few terrain objects beneath the tower. I also added another tower further away from the camera. I then used a number of tree objects and placed them on the balconies, as well as around the towers (2).

Texturing

Since the towers aren't supposed to be man-made structures, I didn't want to use a simple stone surface (3), but more a mix between concrete (4) and metal. I blended a couple of concrete photographic textures and gave them a fairly high specularity level to reflect some of the atmosphere. I used a dirt map for cracks and bumps to add to the worn, decayed look. I also blended a few rock textures for the terrains (5).

Lighting & Postwork

My plans were to create a majestic sunset and have the sunlight coming in from the lower left, without making the scene too dark to see the entire structure properly. For this I used a number of red, white and blue radial lights (omnis). I used 4 red/white lights coming in from the left, where the main lightsource/sun is located, 1 faint white light just in front of the tower, and 1 blue light at the far right, to keep the right side of the tower visible. I made 4 different renders, each with a different atmosphere, and used a neutral backdrop on all of the renders.

I then opened up Photoshop, and placed the 4 renders as separate layers, which I then blended together to get the right base to start working with. When working in Photoshop, I often use colour corrections, and different blend modes to achieve the proper colouring. Once I was satisfied with the base, I started to piece together the sky, which is made from a number of sky photos, as well as painting. I also wanted to show a glimpse of the space surrounding the planet, so I used some good old filters for some stars and gas clouds. I then used the ellipse tool, to draw a couple of planets, in which I applied two deformed concrete textures and a number of layers, to give them a sense of an atmosphere. Once done, I used the tablet to draw a number of trees on top of the existing ones, which I wasn't really satisfied with. I added some details to the towers, such as dirt and gaps, and also a hole at the bottom, that gives a hint on how it looks inside.

fig 2

fig 3

fig 4

fig 5

Looking a little deserted, I decided to add a number of tiny window lights, to make the place look inhabited. The lights were done by drawing some straight bright-coloured lines along some parts of the structures, and then simply use a thin eraser tool to cut gaps in the lines. Finally I duplicated the layer, erased some of the windows on that layer, and added outer glow so that some windows would shine slightly brighter than others (6).

fig 6

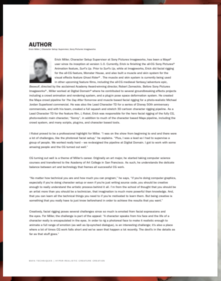
Portfolio examples

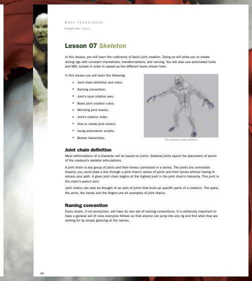
Poser model imported and rendered in Vue 5

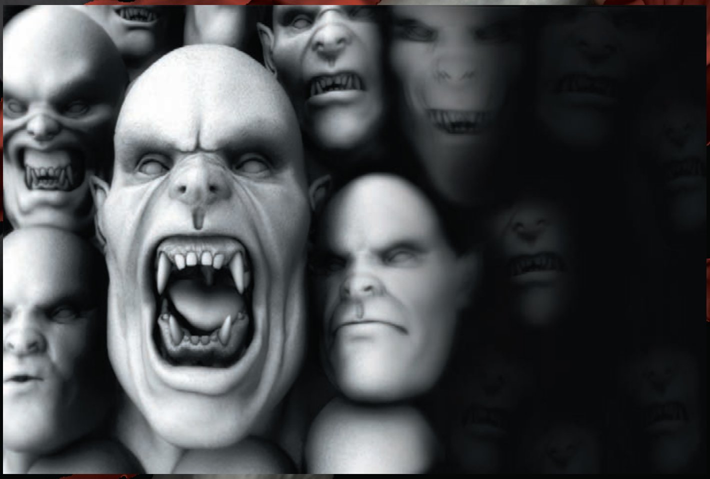
3ds Max car rendered in a Vue environment with Vue 5 xStream

Scene created and rendered in Vue 5 Infinite

Creatively, facial rigging poses several challenges since so much is emoted from facial expressions and the eyes. For Miller, the challenge is part of the appeal: “A character speaks from his face and the life of a character really is encapsulated in the eyes. In order to rig a photoreal face to make it realistic enough to animate a full range of emotion (as well as lip-synced dialogue), is an interesting challenge; it’s also a place where a lot of times CG work falls short and we’ve seen that happen a lot recently. The devil’s in the details as far as that stuff goes.







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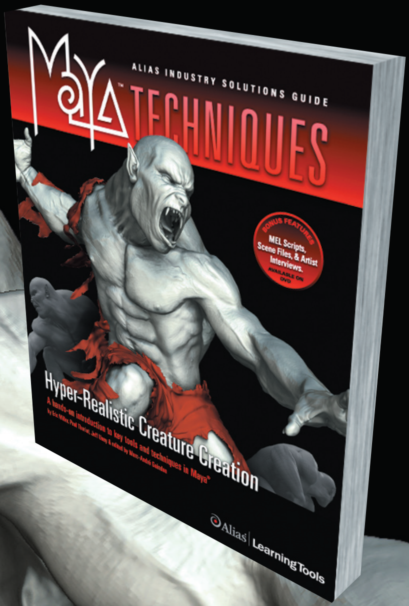
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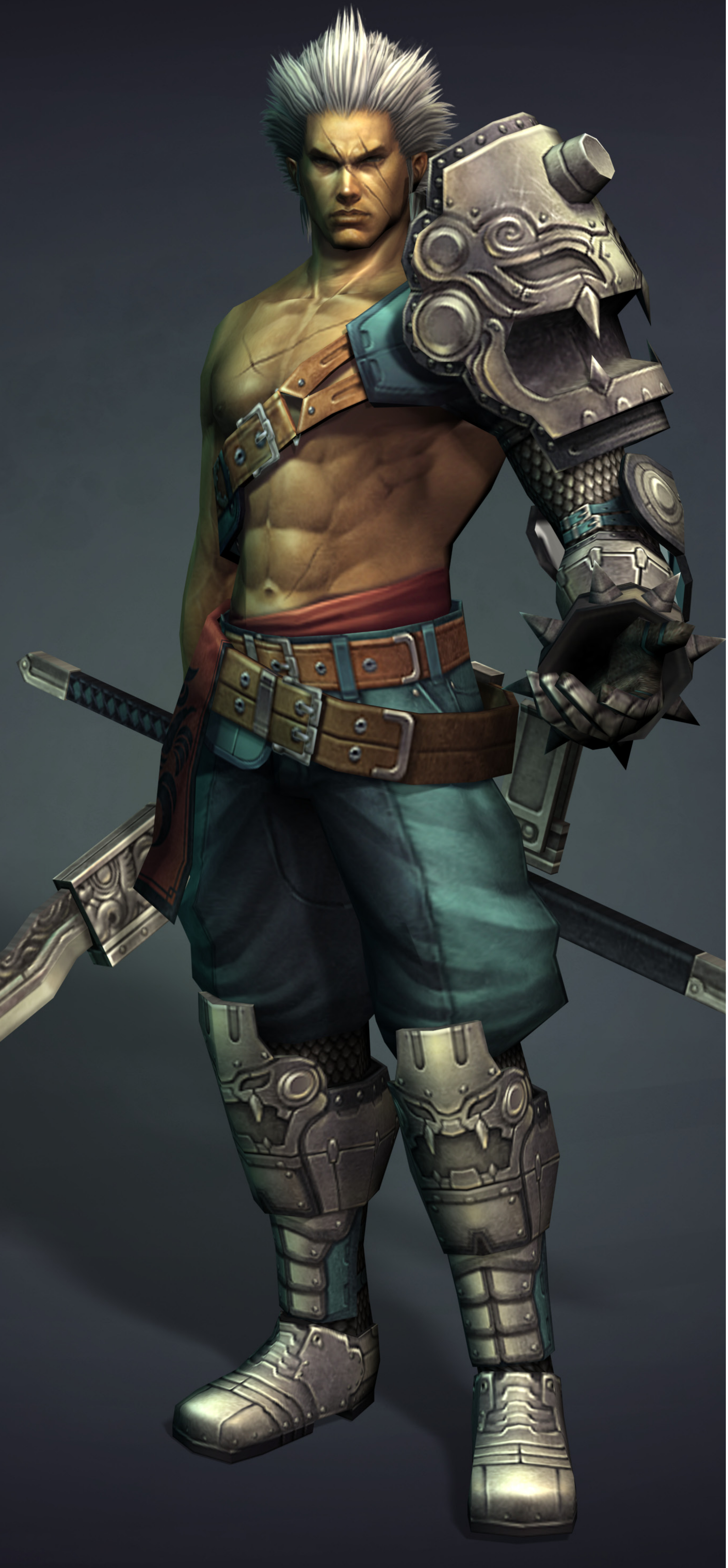


The Swordmaster

3ds max

Is our new precise, step by step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06
Modeling the Head
Issue 010 June 06
Modeling the Torso
Issue 011 July 06
Modeling the Arms & Legs
Issue 012 August 06
Modeling the Clothing & Hair
Issue 013 September 06
Modeling the Armour
Issue 014 October 06
Mapping & Unwrapping
Issue 015 November 06
Texturing the Skin & Body
Issue 016 December 06
Texturing the Armour & Clothing

Enjoy ...

Part 4

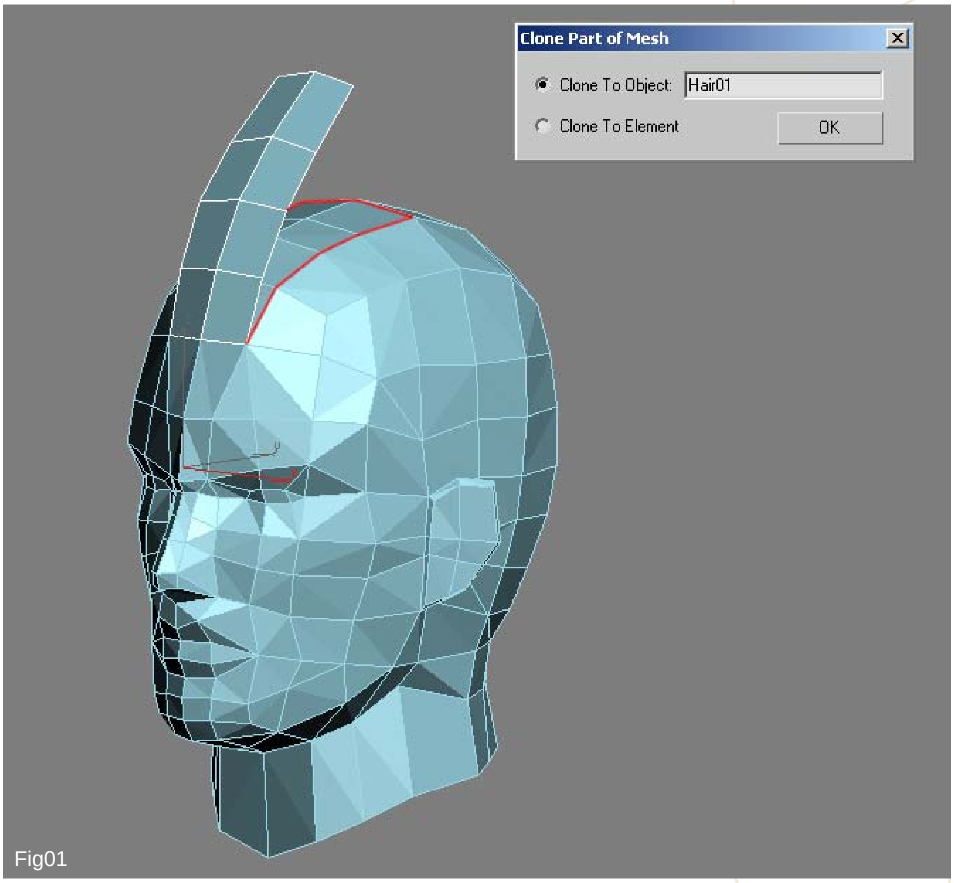
Modelling the Hair and Clothing

Introduction:

Welcome to the fourth installment in the series which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. Now that we have fully built the character it is time to add in the hair and clothing which we shall do this month.

1. If you have followed the previous tutorials on building the character then open the last file and begin by adding an “Edit Poly” above the Symmetry modifier and then select the poly’s highlighted in Fig01. Now hold down the “Shift” key and using the “Move” tool drag this selection upwards to make a copy. You will notice from the image that I have selected “Clone To Object” from the dialogue box but this is only to keep the hair separate at the moment. What we will do for the hair is model the various elements seperately and then group them together at the end and mirror them over to the other half.

2. The next stage involves copying these new poly’s over the the side and “Snapping” the bottom row of verts to the top of the forehead in the positions marked in blue in Fig02. Copy this group once more and then again snap the bottom verts (in red this time) to the edge of the face. This is so this front group can eventually be unwrapped with the top of the face to create a seamless texture for the hairline.



Clone Part of Mesh

● Clone To Object: Hair01

○ Clone To Element

Fig01

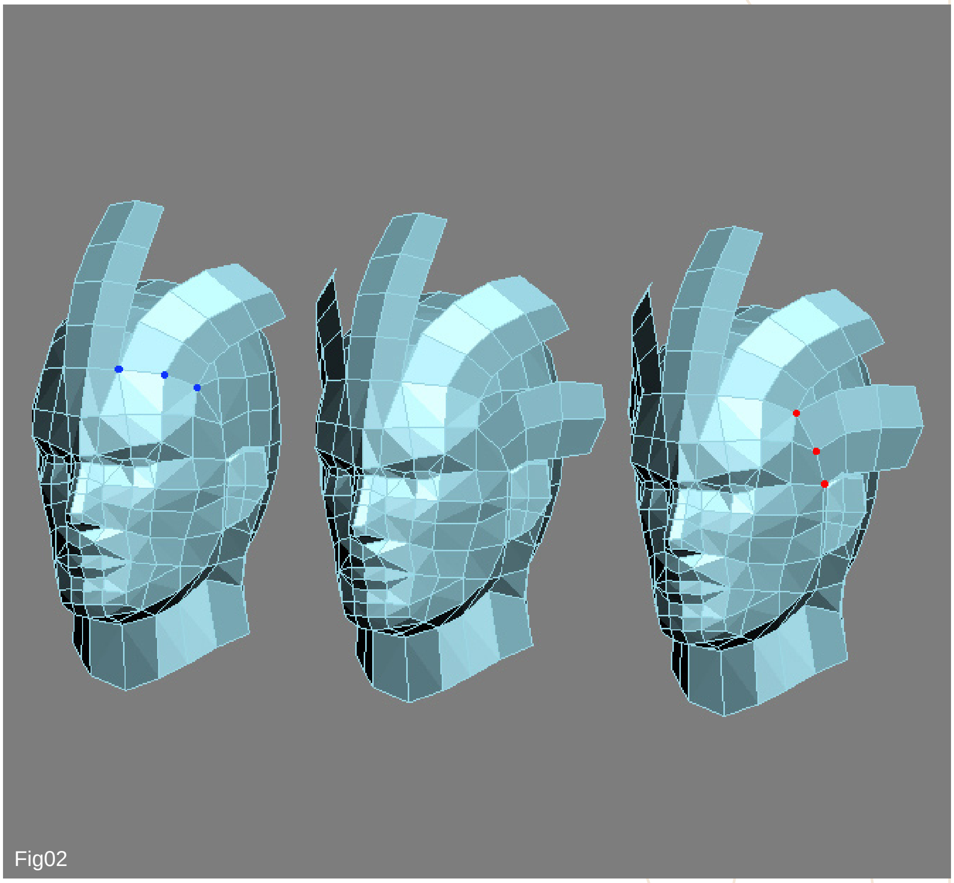


Fig02

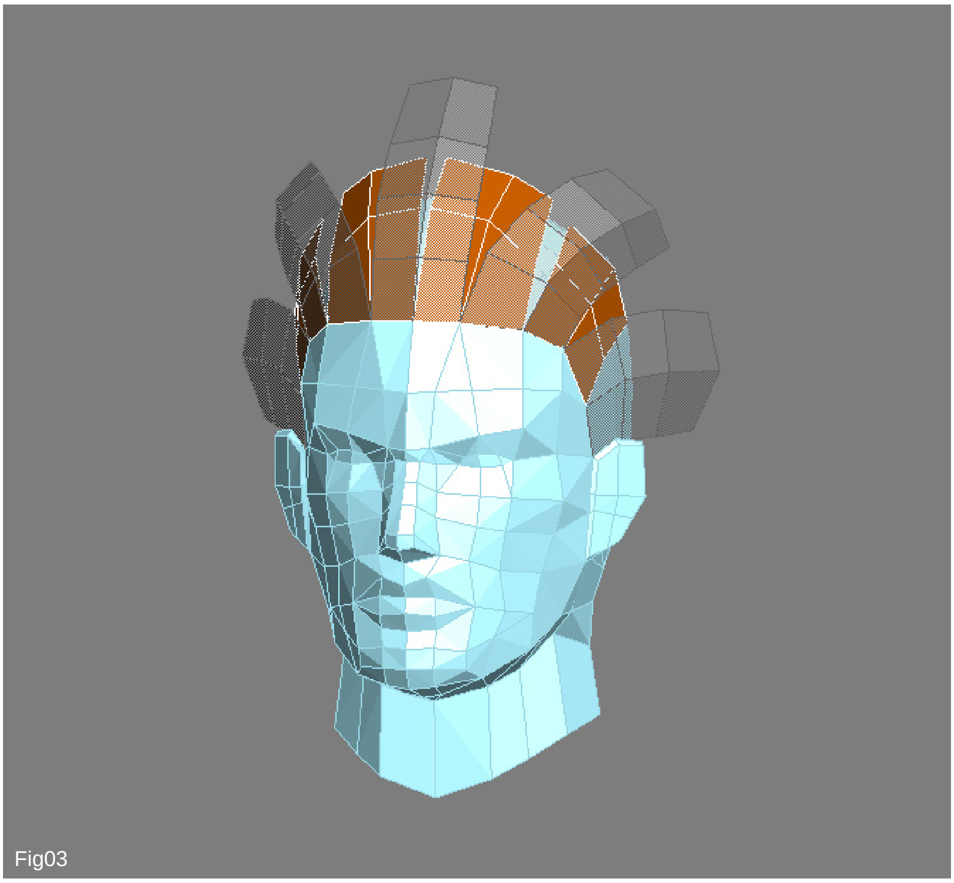


Fig03

3. We can duplicate these extra two sets over to the other side of the face once they are done and begin on the second row of hair which falls directly behind the front row but offset slightly to intersect with the front set (Fig03). You can use a group from the front set to create these and simply delete two rows of poly's resulting in four quads as seen in the picture. Then it is just a case of snapping the verts to the line across the forehead and re-shaping them slightly.

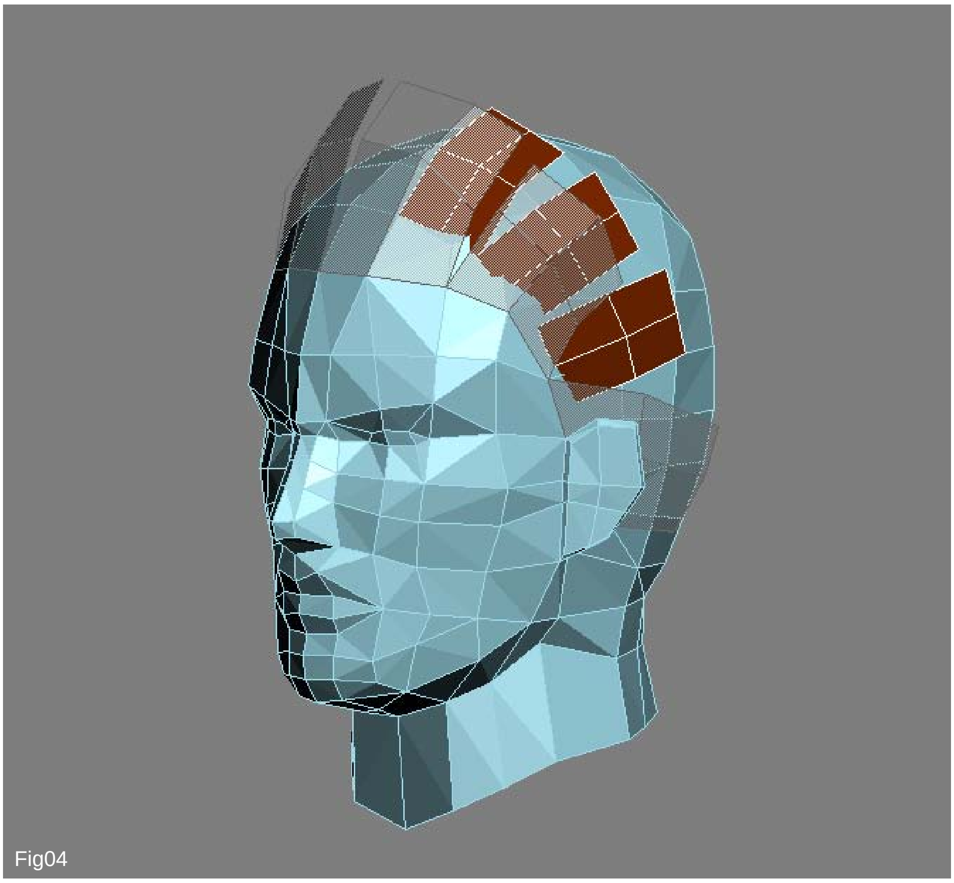


Fig04

4. For the next step we are going to duplicate this new set of poly's and move them behind the second row except this time we shall ignore snapping the verts to any on the scalp (Fig04).

5. Now we have made a start on the front we shall begin building the back section of the hair. In Fig05 you can see a large yellow piece of geometry that has been positioned. You will notice that it is in two pieces and this is because when we finally map and unwrap our mesh we can copy a section of mapped geometry and it carries with it the mapping co-ordinates. Therefore to save on texture space it is best to unwrap parts of the mesh before duplicating them and so enabling us to use a single area of our template to paint numerous parts of our model. In this case it will mean mapping only one half of the yellow area and then copying that half over and welding the two up. This is something we shall explore in more depth during the texturing phase but for now we shall just model all the parts so you can see how thay will eventually look together.

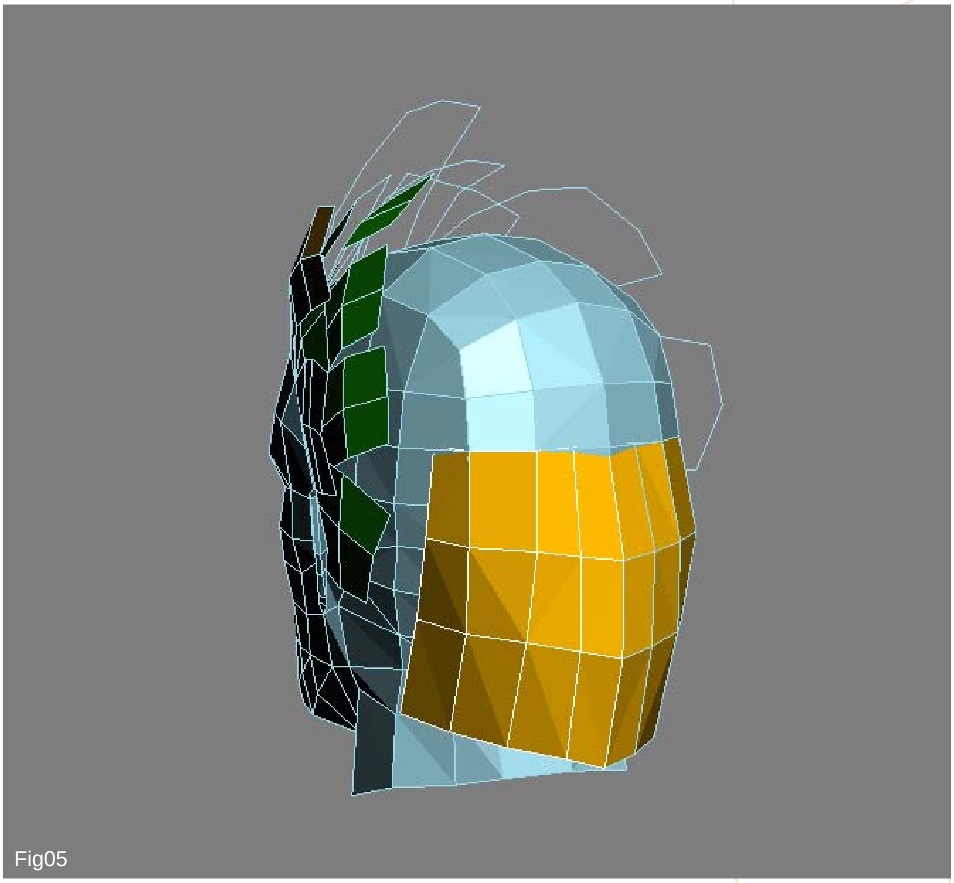


Fig05

6. Now to build the central sections – three rows of nine quads as seen in Fig06. Once again do not worry about the verts aligning, just concentrate on shaping the mesh to follow the shape of the head in the same way we have done before.

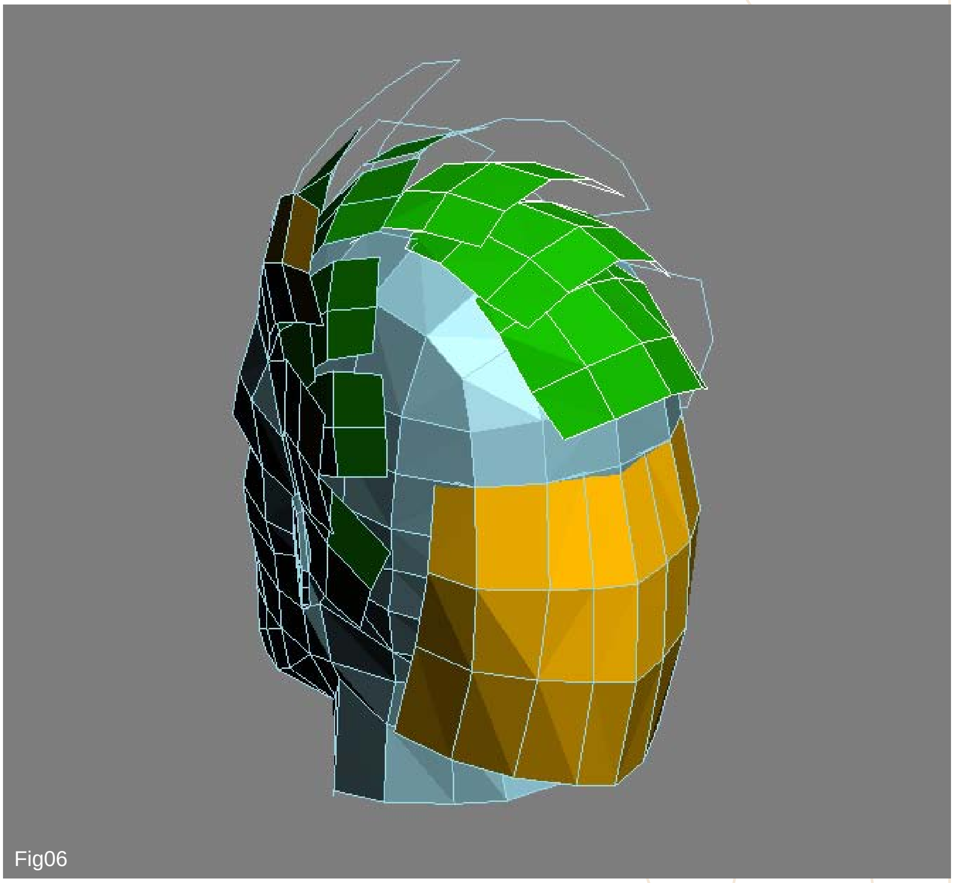
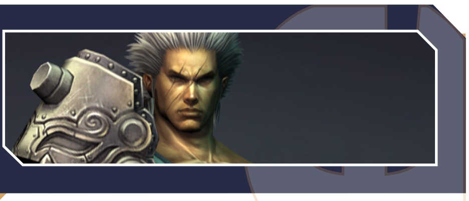


Fig06



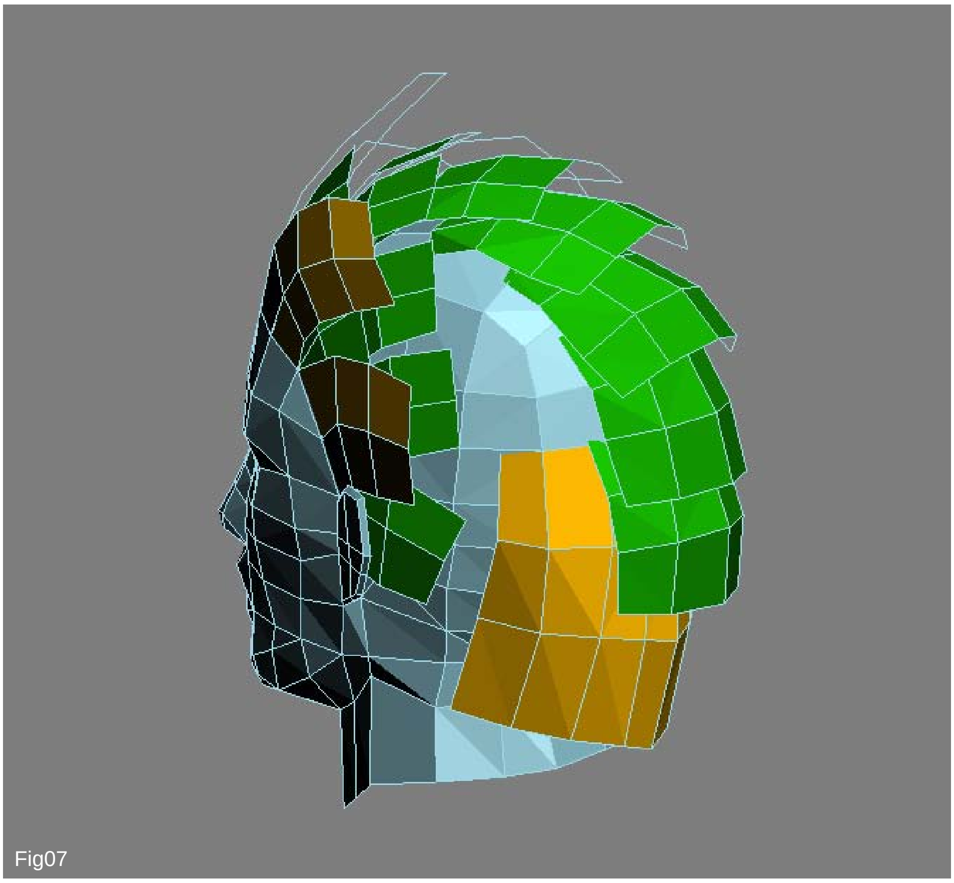


Fig07

7. To finish this section add two more rows as seen in Fig07.

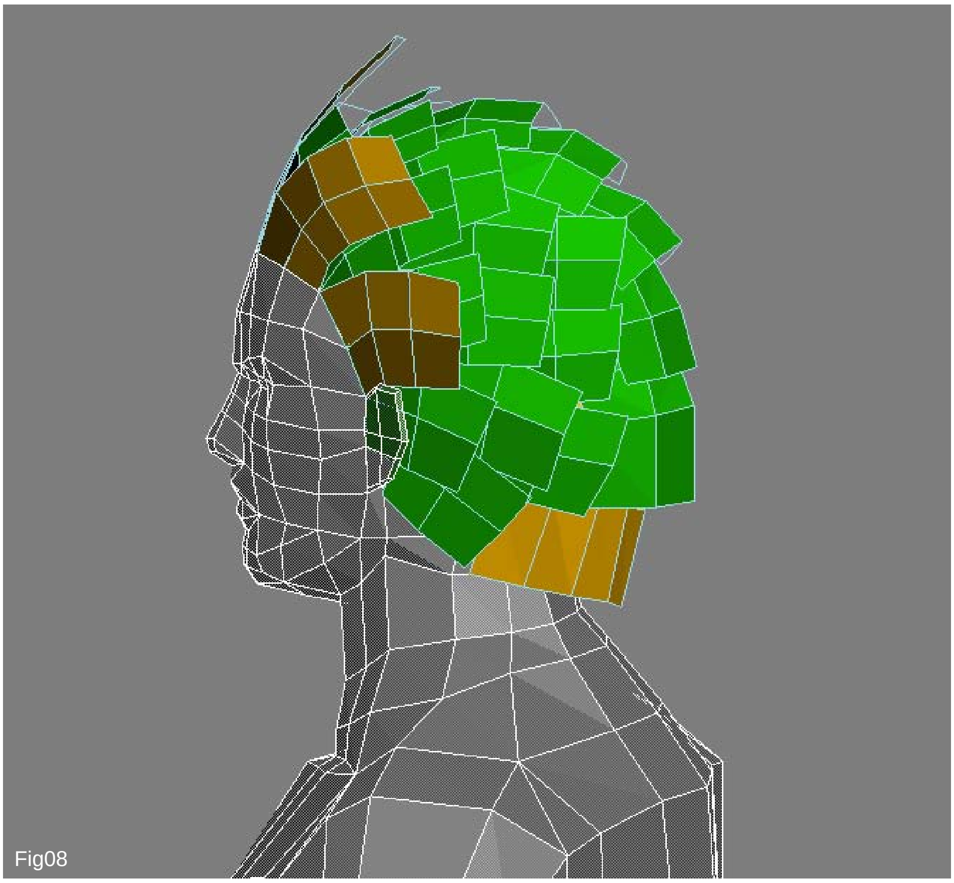


Fig08

8. The front, back and central section of the hair is now complete and all that remains to do is add in a group of planes that will form the sides. A few pieces of the geometry will eventually be mapped later on before being duplicated but for now simply add in two rows along the side of the head similar to Fig08. You will notice I have placed a couple of planes just behind and below the ear to mimic Seong's model but basically put in enough to mask the scalp.

9. When these pieces are copied over to the other side we end up with the finished article (Fig09).

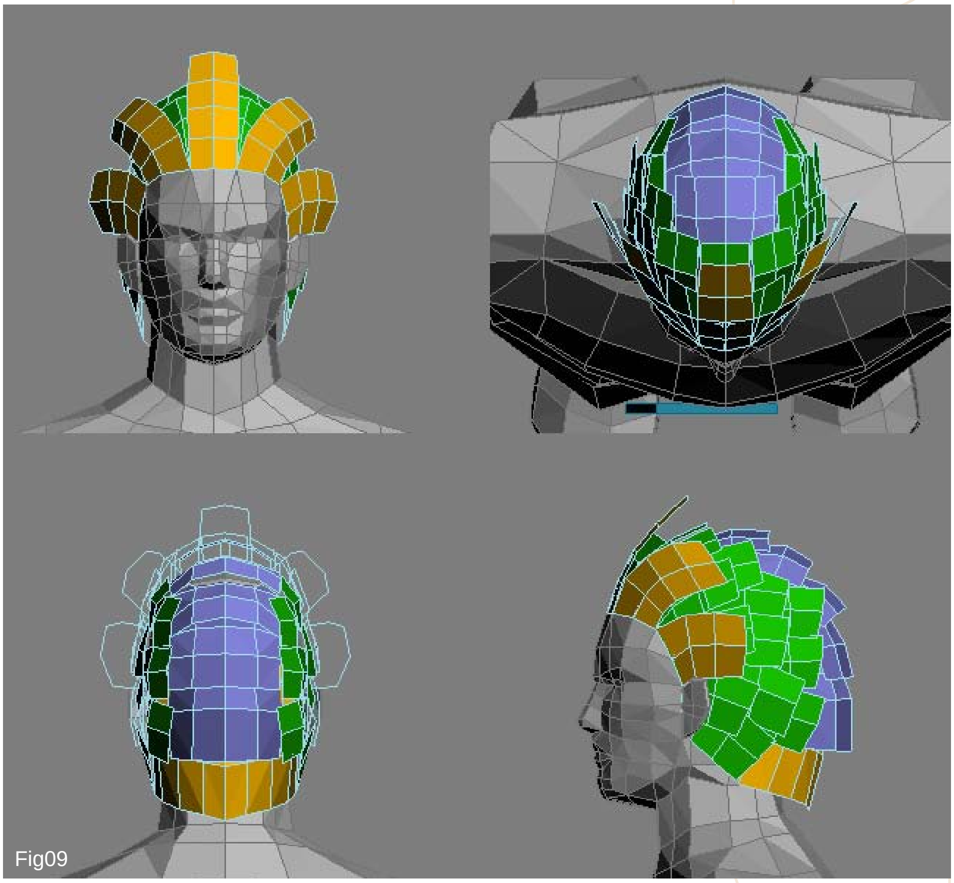
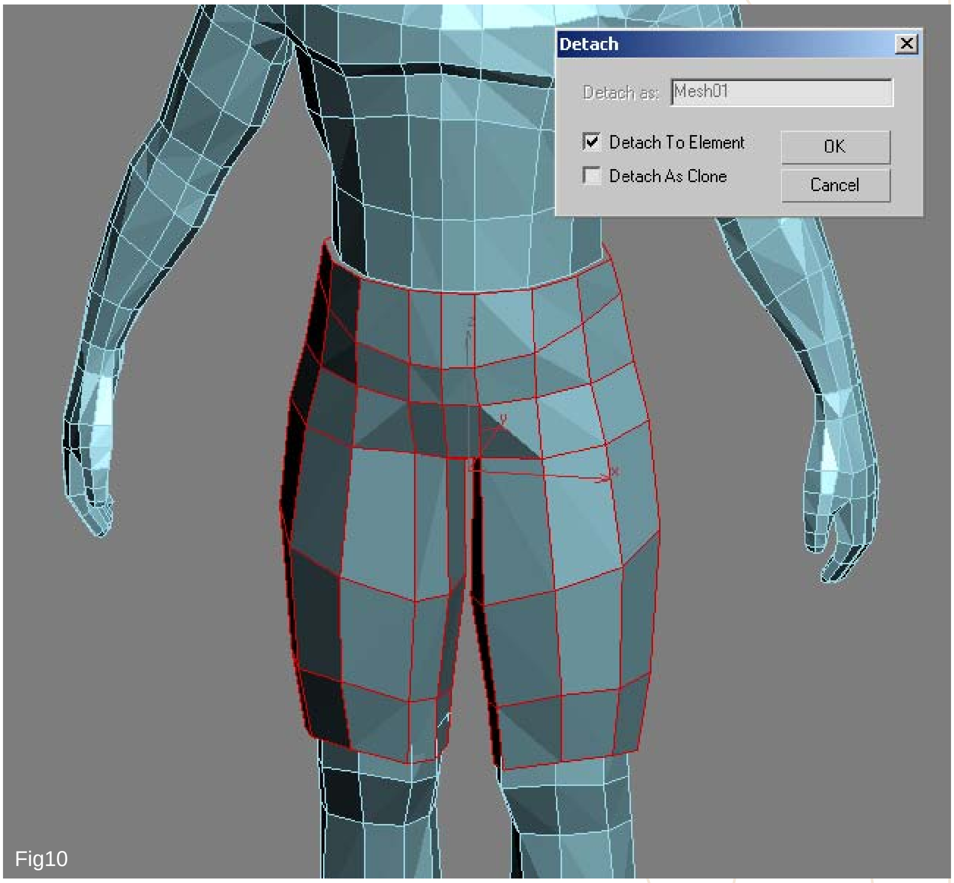


Fig09

10. Now it is time to add the clothing, the first part of which shall be the trousers. First thing to do is select the group of poly's that will form the trousers as shown in Fig10. Detach these and make them an element in the dialogue box so they remain part of the main mesh and then universally scale them up slightly.



Detach

Detach as: Mesh01

☑ Detach To Element

☐ Detach As Clone

Fig10

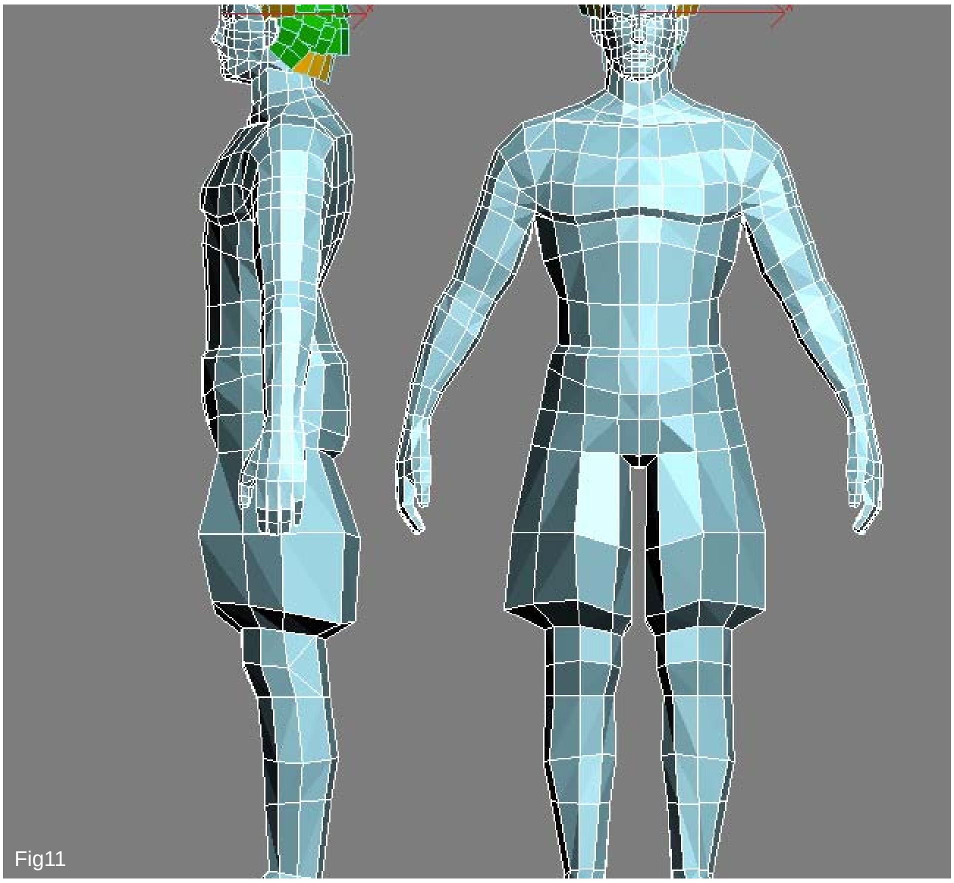


Fig11

11. With this done add in a row of verts at the top to join the trousers back onto the body and then proceed to transform the verts into positions that resemble Fig11.

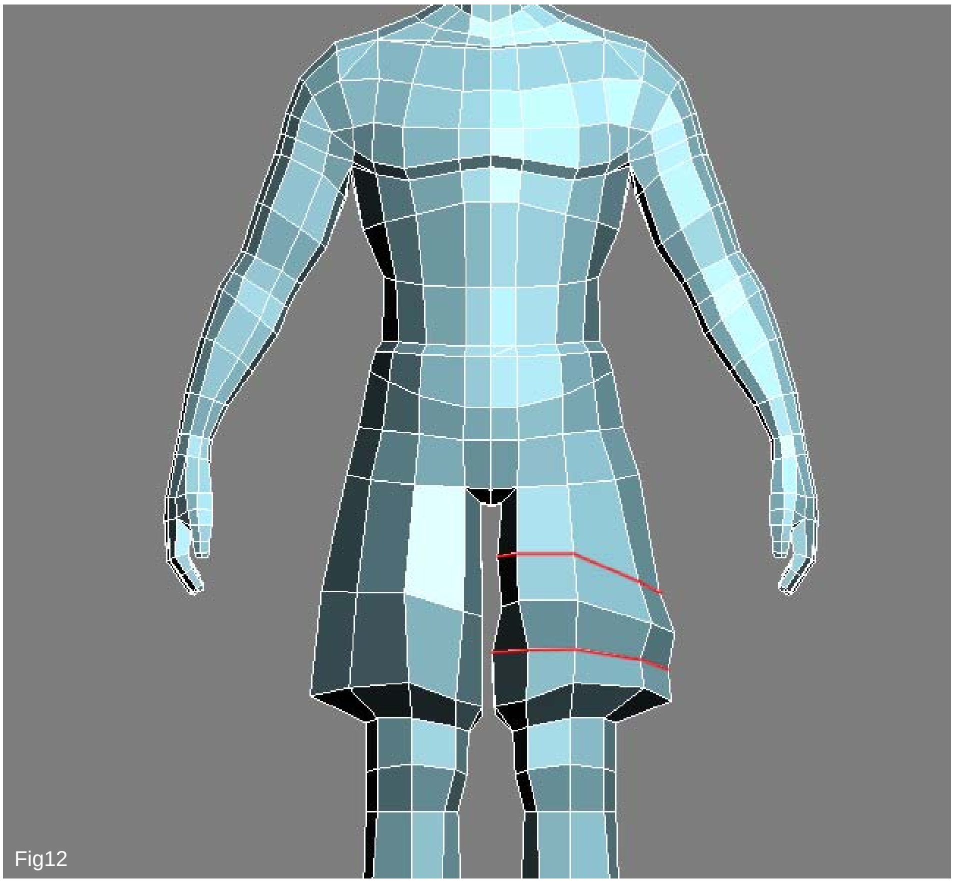


Fig12

12. Then add in two subdivisions using the "Ring /Connect" in the areas marked in red in Fig12.

13. Add a further cut in sub-object poly mode from the front of the mesh and around to the back as shown in Fig13.

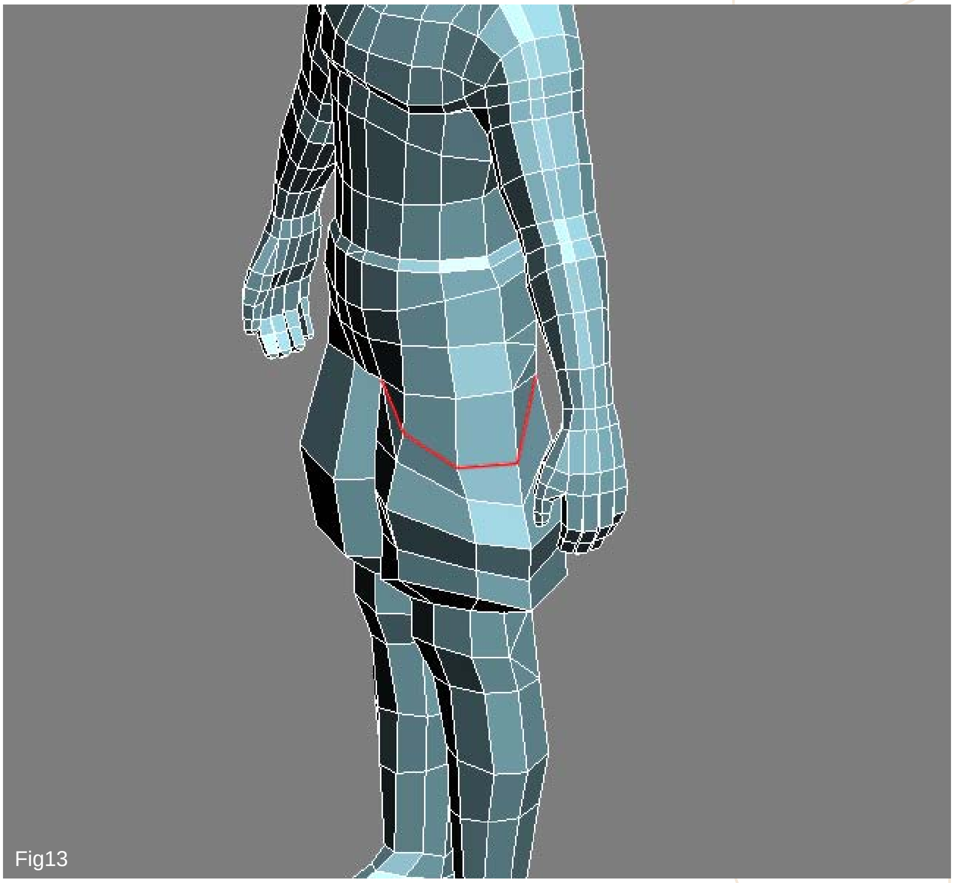


Fig13

14. The next stage involves making further cuts in along the lines shown in red in Fig14 at the back of the trousers. This is to provide the correct creasing in the right areas and once done you can create quads in the areas highlighted in green which will finish off the trousers.

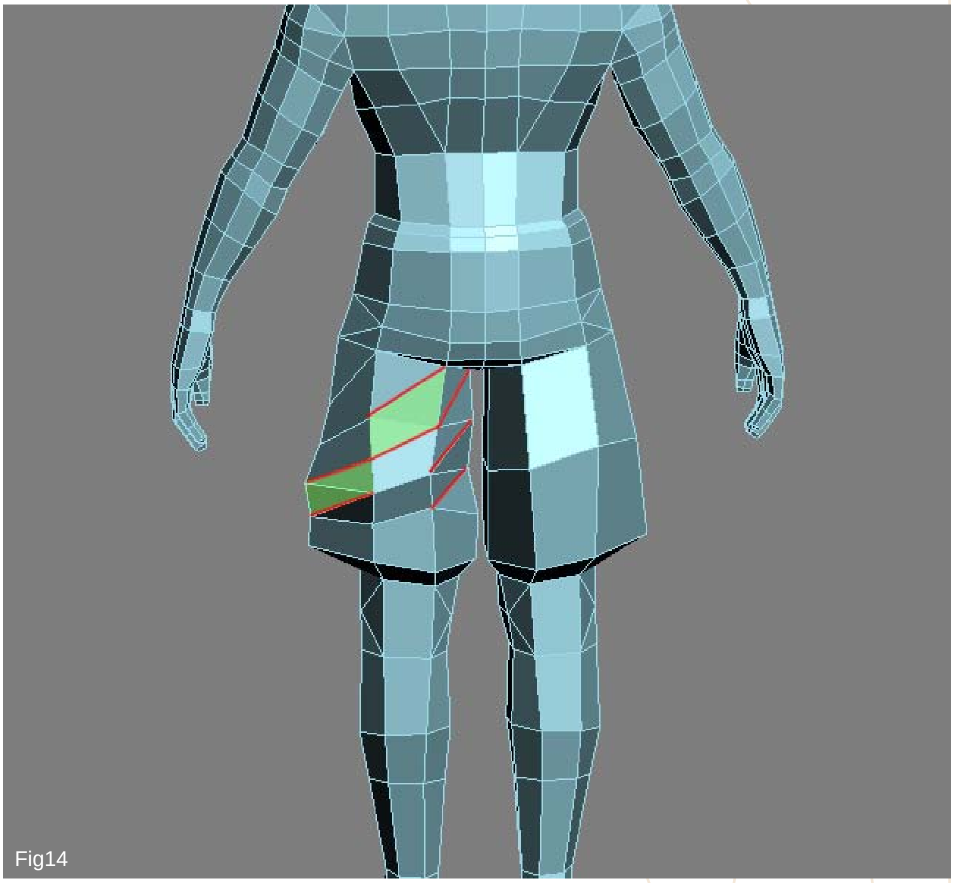
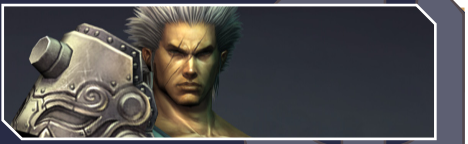
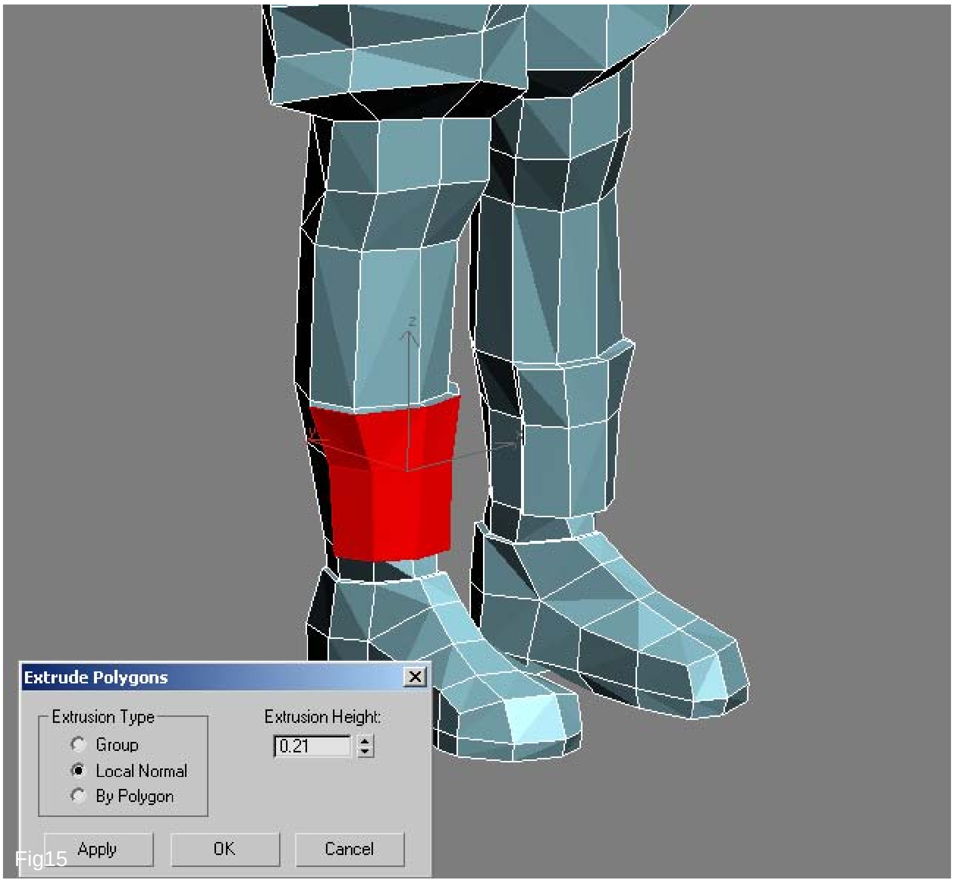


Fig14





Extrude Polygons

Extrusion Type
○ Group
● Local Normal
○ By Polygon

Extrusion Height: 0.21

Fig15

15. The next item we shall create are the shin guards. Simply selest the group of poly's that make up the front of the shin as seen in Fig15 and click on "Extrude" making sure to select Local Normal and bring these out somewhat and that's it!

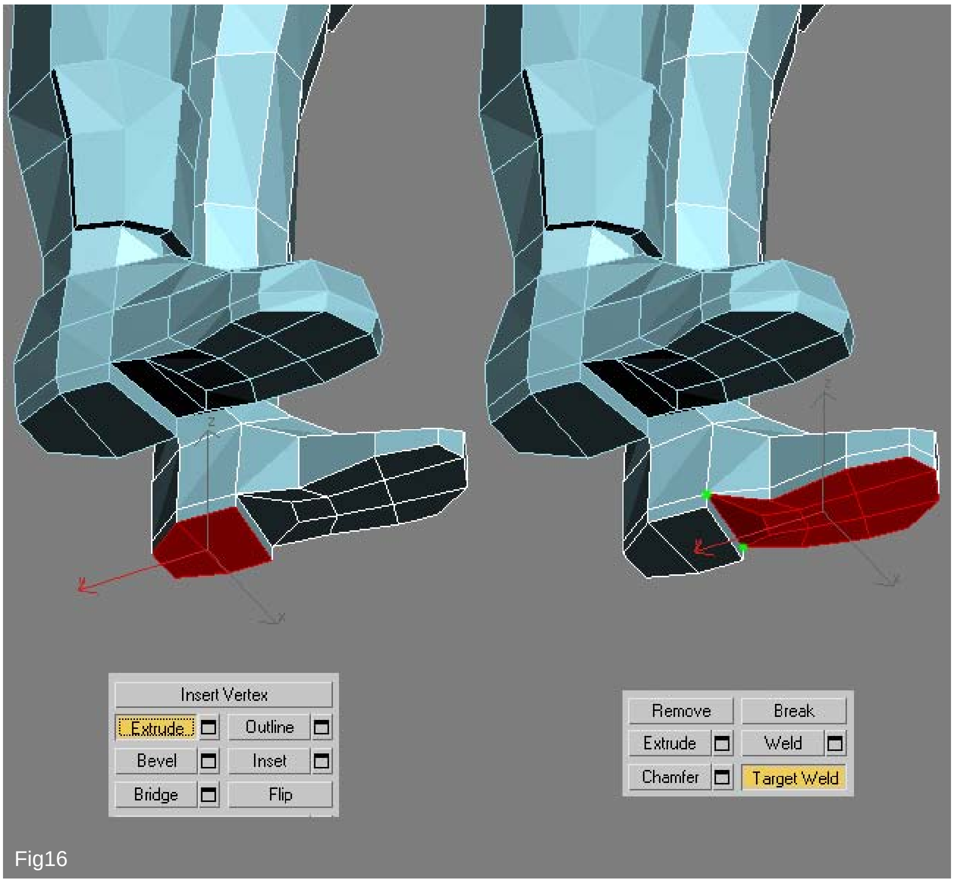
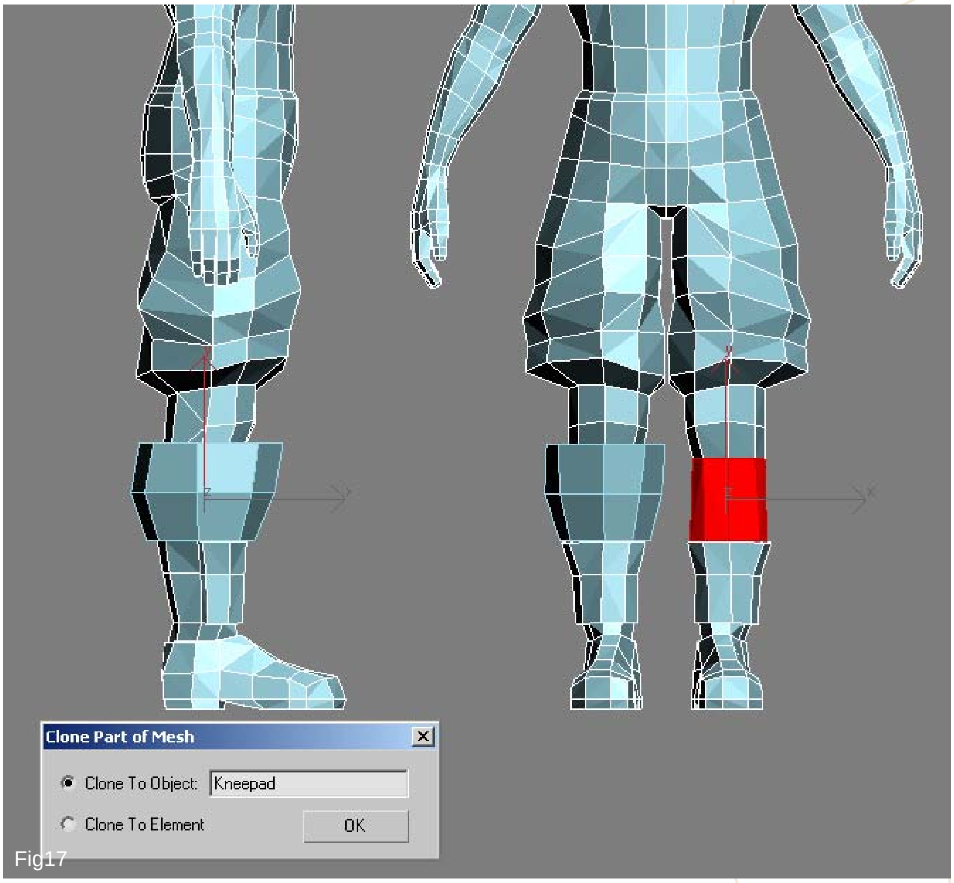


Fig16

16. Now onto the footwear. Start the boots off by detaching the foot as we did with the trousers and again scale the poly's up a little as before and then create a group on the top joining them back to the leg (Fig16). Now we need to add a heel and sole to them so first select the two quads at the back and extrude them down as seen on the left highlighted in red. Now repeat this for the rest of the poly's as shown on the right of the picture. You will now have some extra depth to the boot but the sole is still flat with two hidden poly's so grab the two verts furthest back on the second extrusion and weld them to the ones at the upper front of the heel (green dots on the right). This concludes the footwear and next onto the kneepads.

17. Referring to Fig17 select the poly's shown in red and holding down shift in "Select and Move" mode select Clone to Object from the dialogue box and name the object kneepad. This will create a new object which we can then scale according to the one shown on the left.

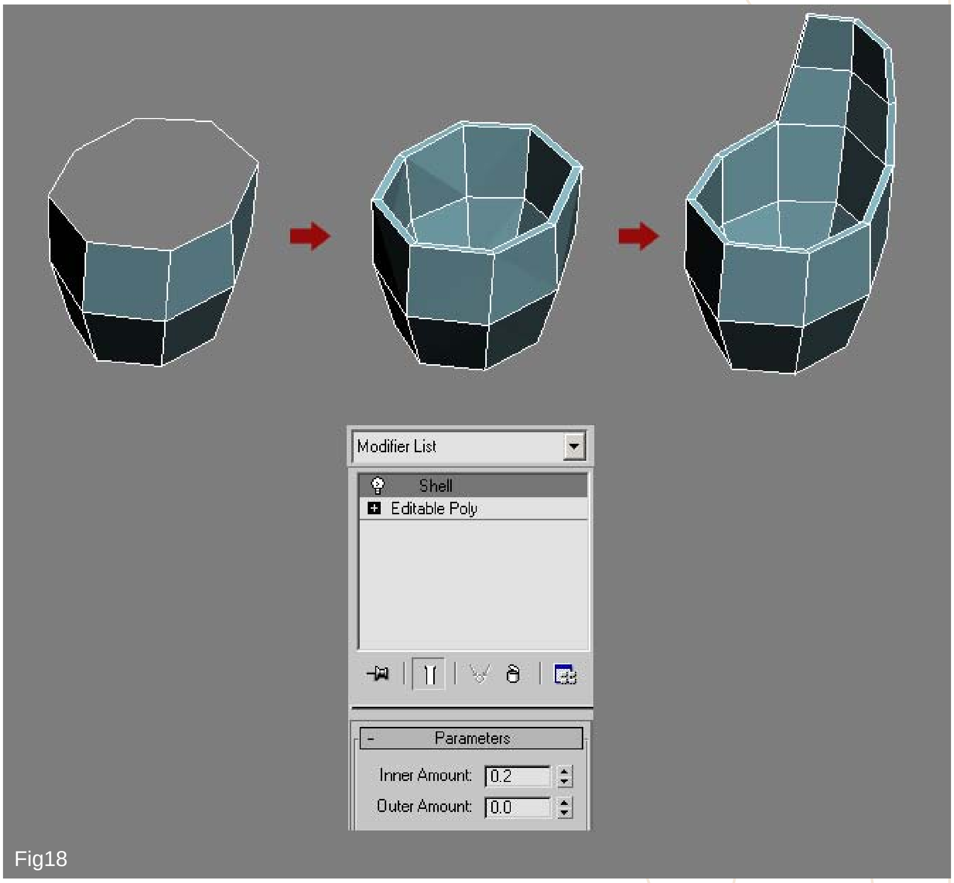

Clone Part of Mesh

● Clone To Object: Kneepad

○ Clone To Element

Fig17

18. You will notice that at the moment it has no depth at all and so to amend this we will add a "Shell" modifier from the modifier list. In Fig18 you will notice this at the top of the stack and when you alter the inner amount by about 0.2 it creates a set of inner faces as seen in the middle image. All that remains is to select the front two top poly's and do two extrusions scaling inwards slightly to form the upper part shown on the right.


Modifier List

Shell

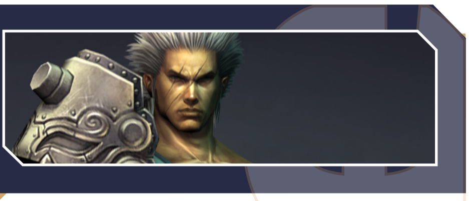
Editable Poly

Parameters

Inner Amount: 0.2

Outer Amount: 0.0

Fig18



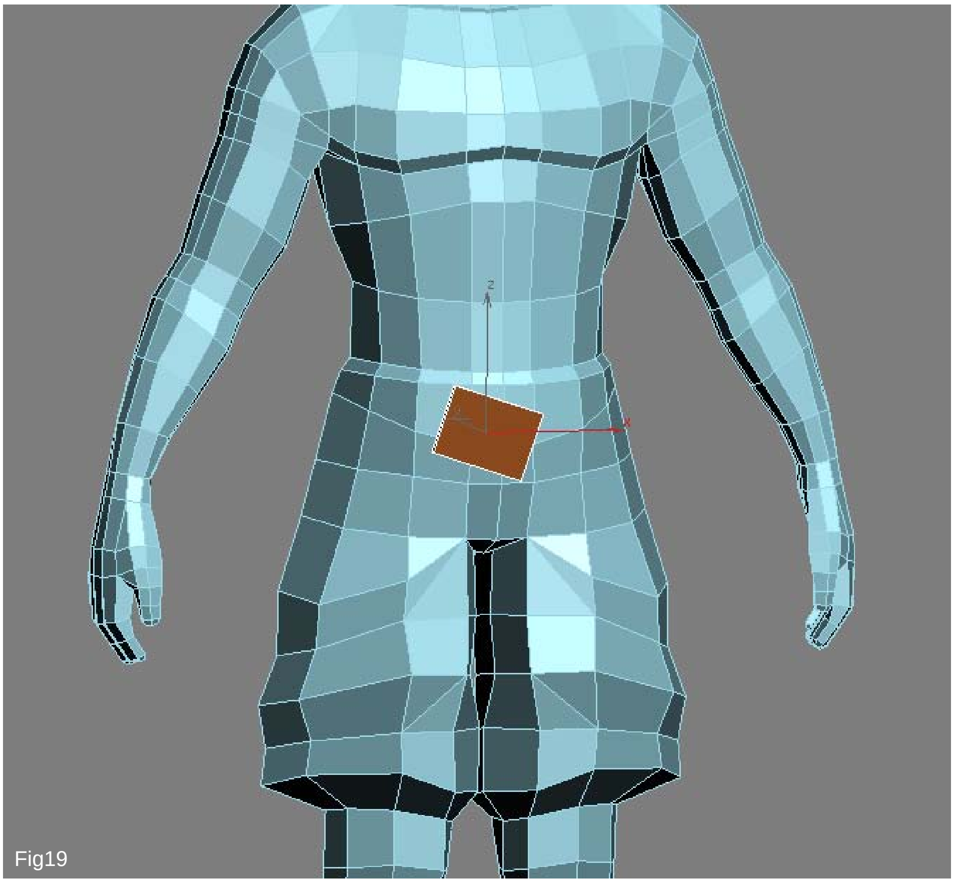
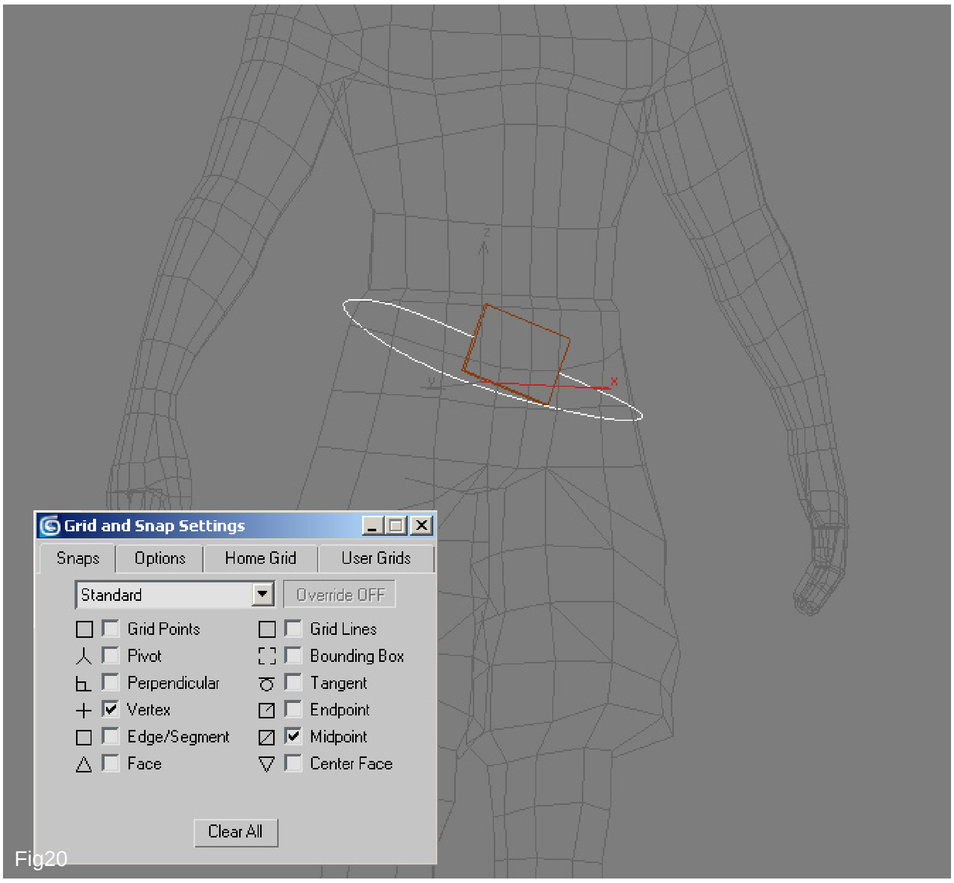


Fig19

19. This brings us to the final piece of clothing that we shall add in this tutorial; the belt. Start by creating a shallow box, convert it to an “Editable Poly” and place it in front of the upper part of the trousers, rotating it slightly as seen in Fig19. This will form the beginning of the object and what we shall do next is create a spline that wraps around the body from either end of the box and then extrude one end of box along this spline to form a belt shape.



Grid and Snap Settings

Snaps | Options | Home Grid | User Grids

Standard | Override OFF

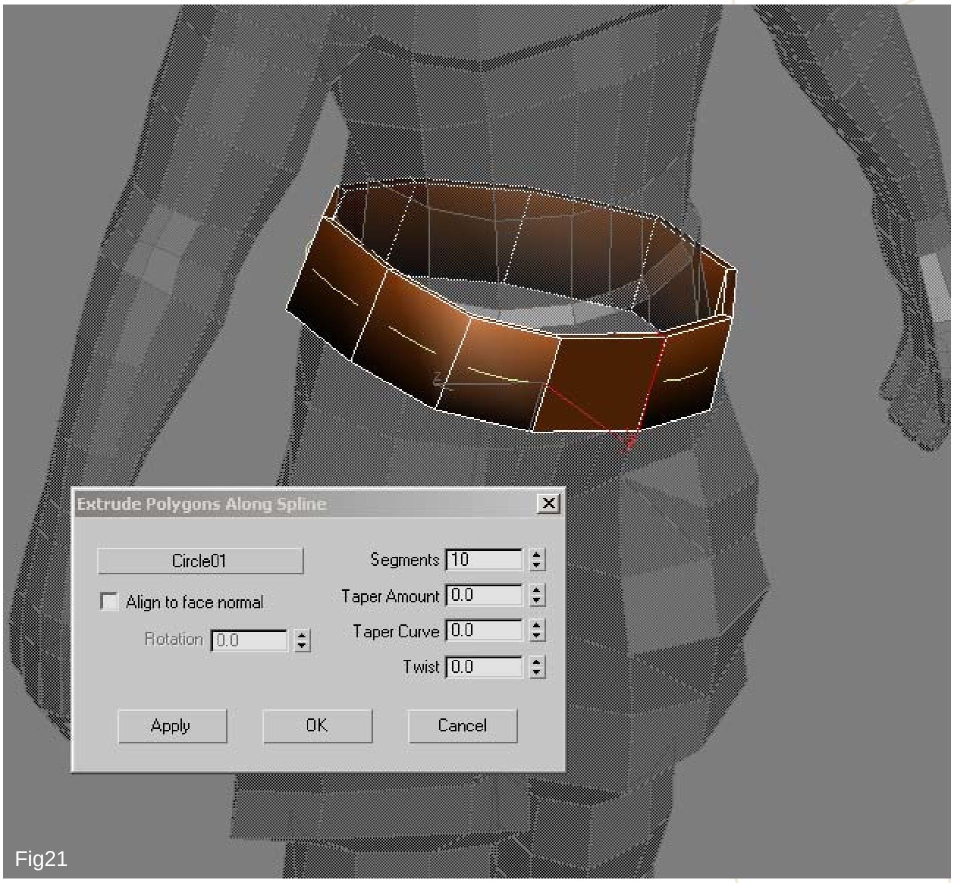
☐ Grid Points | ☐ Grid Lines
☐ Pivot | ☐ Bounding Box
☐ Perpendicular | ☐ Tangent
☑ Vertex | ☐ Endpoint
☐ Edge/Segment | ☑ Midpoint
☐ Face | ☐ Center Face

Clear All

Fig20

20. Under the “Shapes” tab in the Modify panel click on “Ellipse” and then left click and drag out a shape in the top view. Right click on the object and select “Convert to Editable Spline”, (you will notice this is the name in the modifier stack now). In sub-object “Vertex” mode select the bottom most vert and then click on “Break”. This will now give you access to two verts wherer there was once one. Move them apart slightly and then after selecting the left one click on “Make First” (this will now add a small square around it as opposed to a crosshair). Now what we need to do is position the spline around our character in a manner that follows the path of our belt (Fig20). Use the “Snaps Toggle” (set to 3) and tick the boxes shown in the inset dialogue box. Now move the two broken verts to both ends of the box and centralize them midway down. Now turn off the snaps tool and move the verts to roughly the middle of the end faces – does not need to be perfect.

21. In sub-object poly mode select the left end face of the box and click on the settings tab next to “Extrude Along Spline”. This will open up the dialogue box seen in Fig21 with a pick spline tab in the top left. Click on this and then select your spline shape. You should now see a belt magically appear around your character’s waist. Change the segements to 10 so it has a reasonable shape and then delete the two end polys making sure to snap and weld the verts together afterwards.



☐ Align to face normal
Rotation 0.0
Segments 10
Taper Amount 0.0
Taper Curve 0.0
Twist 0.0

Fig21

22. Now that we have the belt wrapped around the character we just need to transform the verts and fit it properly around the mesh (Fig22).

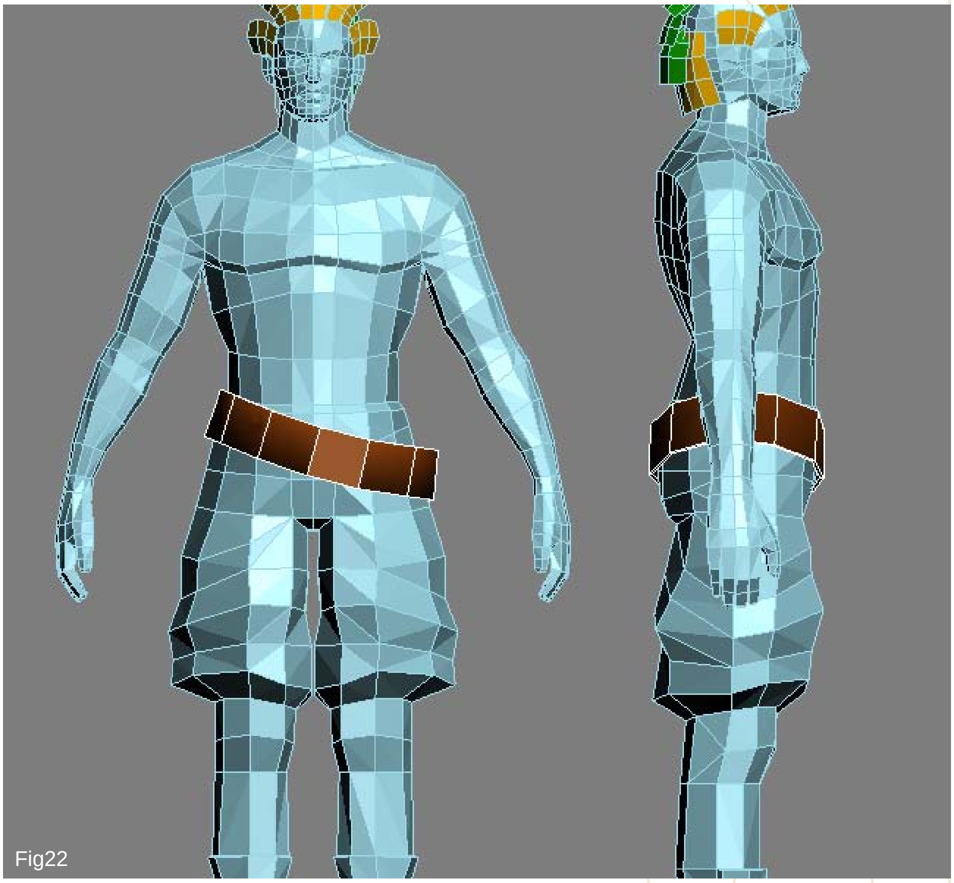
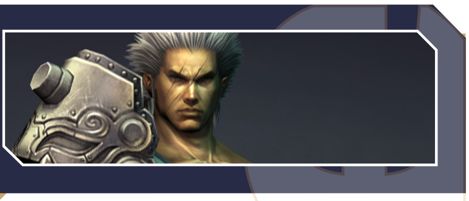
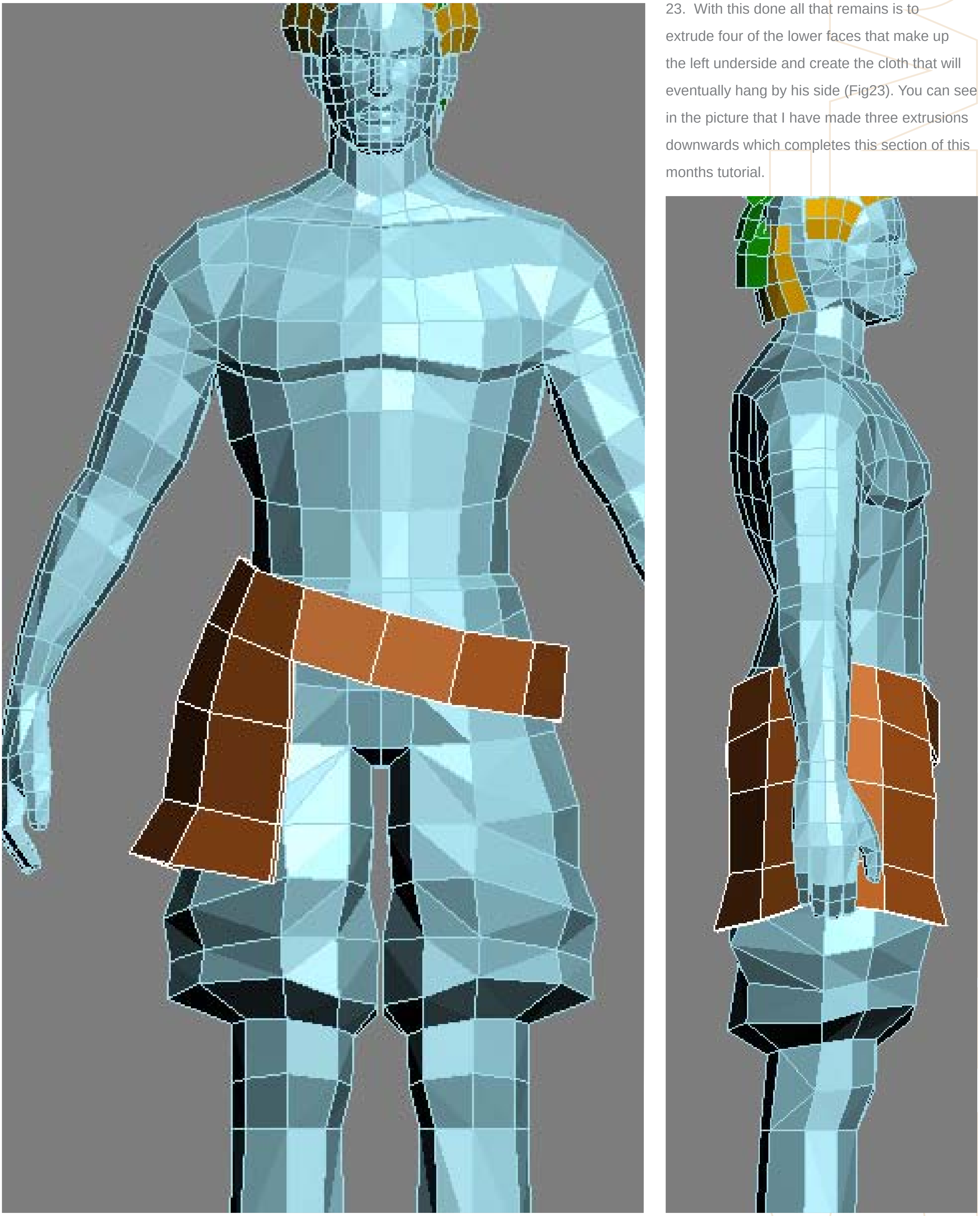
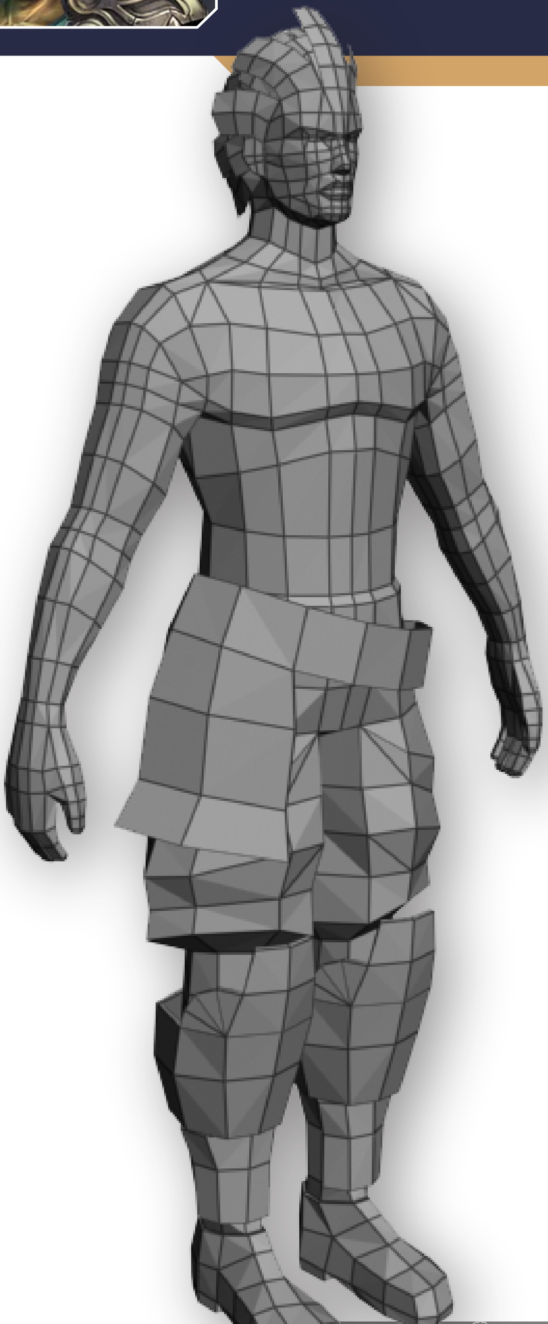


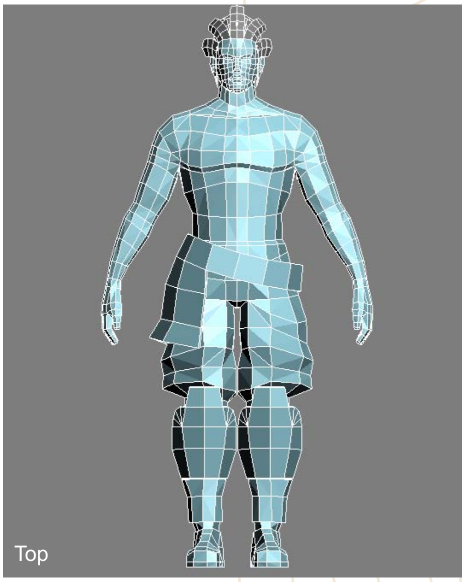
Fig22

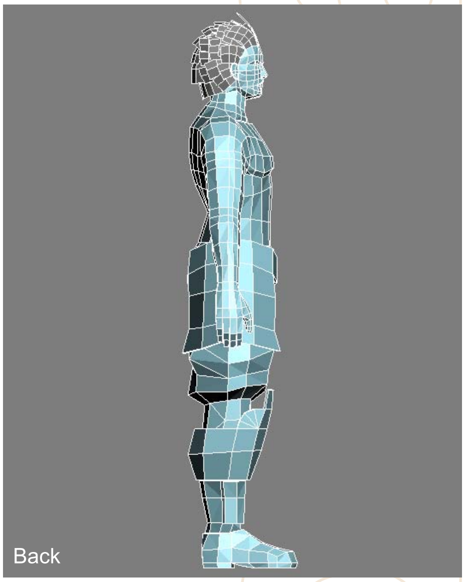


23. With this done all that remains is to extrude four of the lower faces that make up the left underside and create the cloth that will eventually hang by his side (Fig23). You can see in the picture that I have made three extrusions downwards which completes this section of this months tutorial.









Next month we shall go on and finish the modelling stages by adding the Armour elements before readying ourselves for the texturing phase.

Tutorial By :

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The ‘Swordmaster’
character was originally created by

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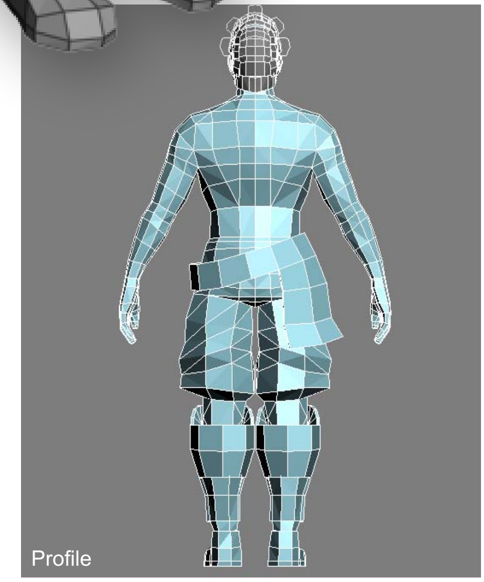
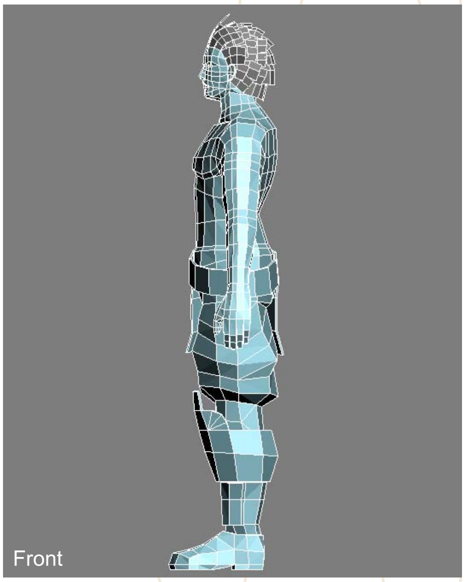
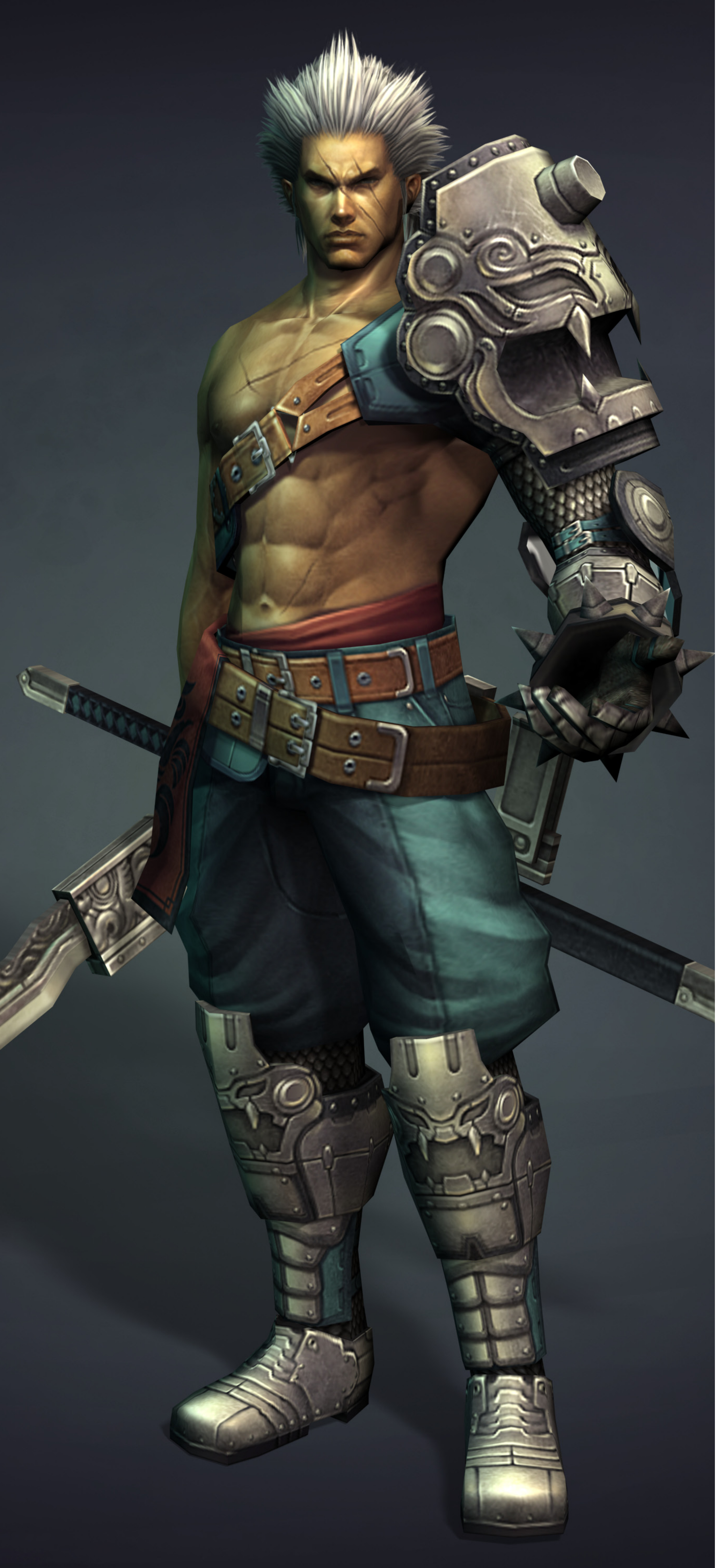
sephiloss@naver.com







The Swordmaster

Is our new precise, step by step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06

Modeling the Head

Issue 010 June 06

Modeling the Torso

Issue 011 July 06

Modeling the Arms & Legs

Issue 012 August 06

Modeling the Clothing & Hair

Issue 013 September 06

Modeling the Armour

Issue 014 October 06

Mapping & Unwrapping

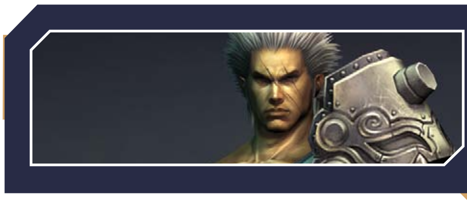
Issue 015 November 06

Texturing the Skin & Body

Issue 016 December 06

Texturing the Armour & Clothing

Enjoy ...



PART 4

MODELLING THE HAIR AND CLOTHING

INTRODUCTION:

Welcome to the fourth installment in the series which will provide a step by step guide to building a low poly character based upon a model by Seong-Wha Jeong. Now that we have fully built the character it is time to add in the hair and clothing which we shall do this month.

1. If you have followed the previous tutorials on building the character then open the last file and begin by adding new polygons above the head as shown on Fig01, then select the poly's highlighted in it. Now click right mouse button and choose the "Split" tool from menu to make a copy of those polygons. You will notice from the image (bottom left) that a new object has appeared and it is inside the Symmetry. So, drag it out and rotate it on the X axis as shown on the bottom right of Fig01. What we will do for the hair is model the various elements seperately and then group them together at the end and mirror them over to the other half.

2. The next stage involves copying these new poly's over the the side and "Snapping" the bottom row of verts to the top of the forehead in the positions marked in green in Fig02. Copy this group once more and then again snap the bottom verts (in red this time) to the edge of the face. Now group these new objects into a Null Object (select all objects > right mouse > Group Objects) and then drag it inside the Symmetry like shown in Fig02 (bottom rigt).

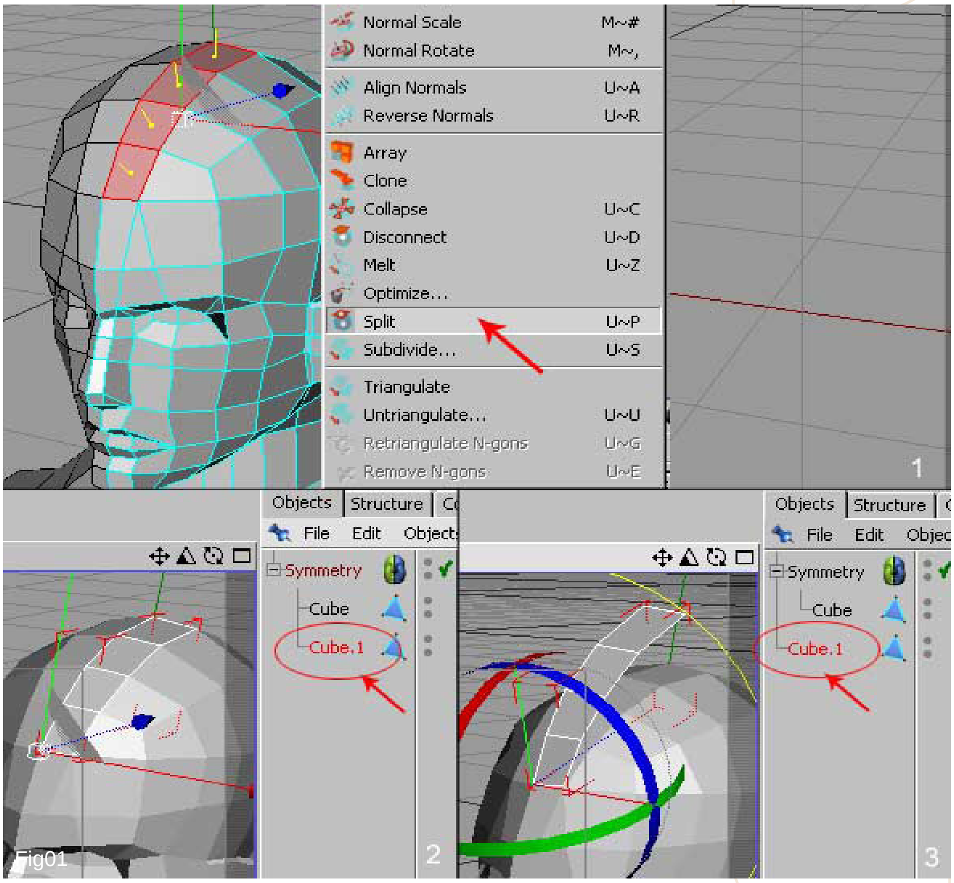


Fig01

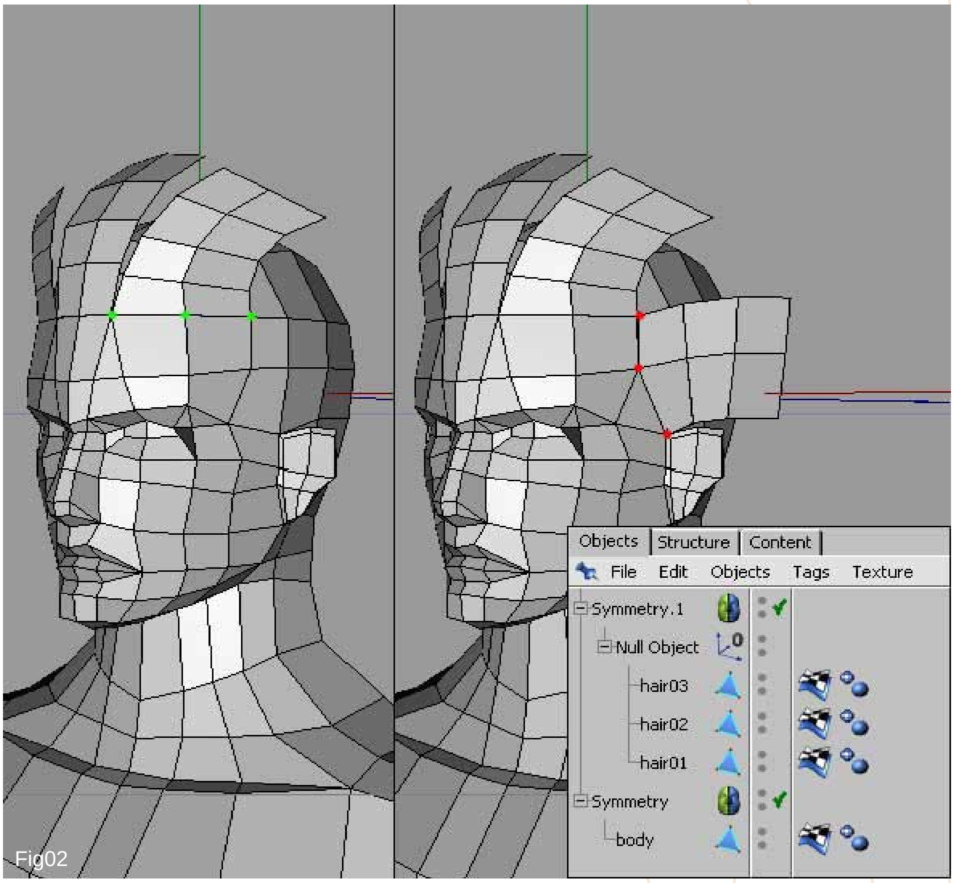


Fig02

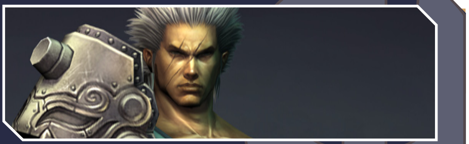
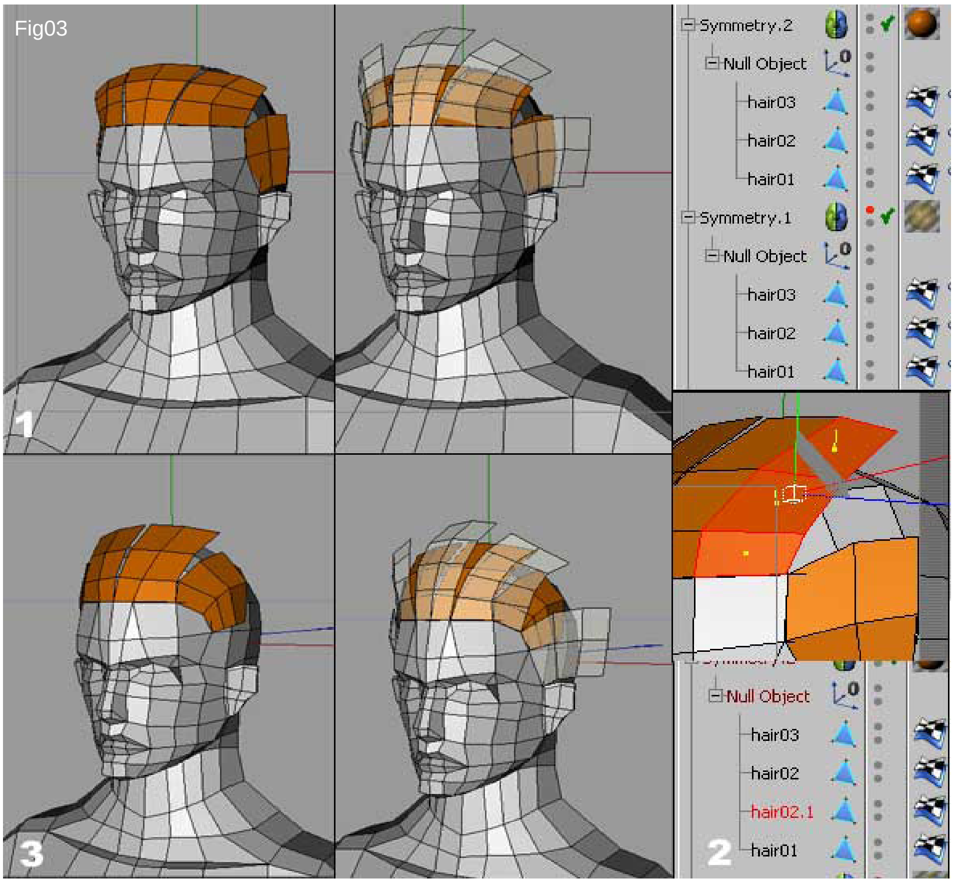


Fig03



3. We can duplicate these extra two sets over to the other side of the face once they are done, and begin on the second row of hair which falls directly behind the front row but offset slightly to intersect with the front set (Fig03 - top). Then make a copy of the Symmetry object like shown on the top right of Fig03. Adjust the shape by deleting so that only one row of poly's remains as seen in the picture (top-left). Then it is just a case of snapping the verts to the line across the forehead and re-shaping them. Select the "hair02" object and split the poly's like shown on bottom right of figure (step 2), do the same for the "hair03", weld so the vertexes in order to obtain the mesh as shown the step 3 (bottom-left of figure). Name the objects with incremental numbers and group them in a Null Object.

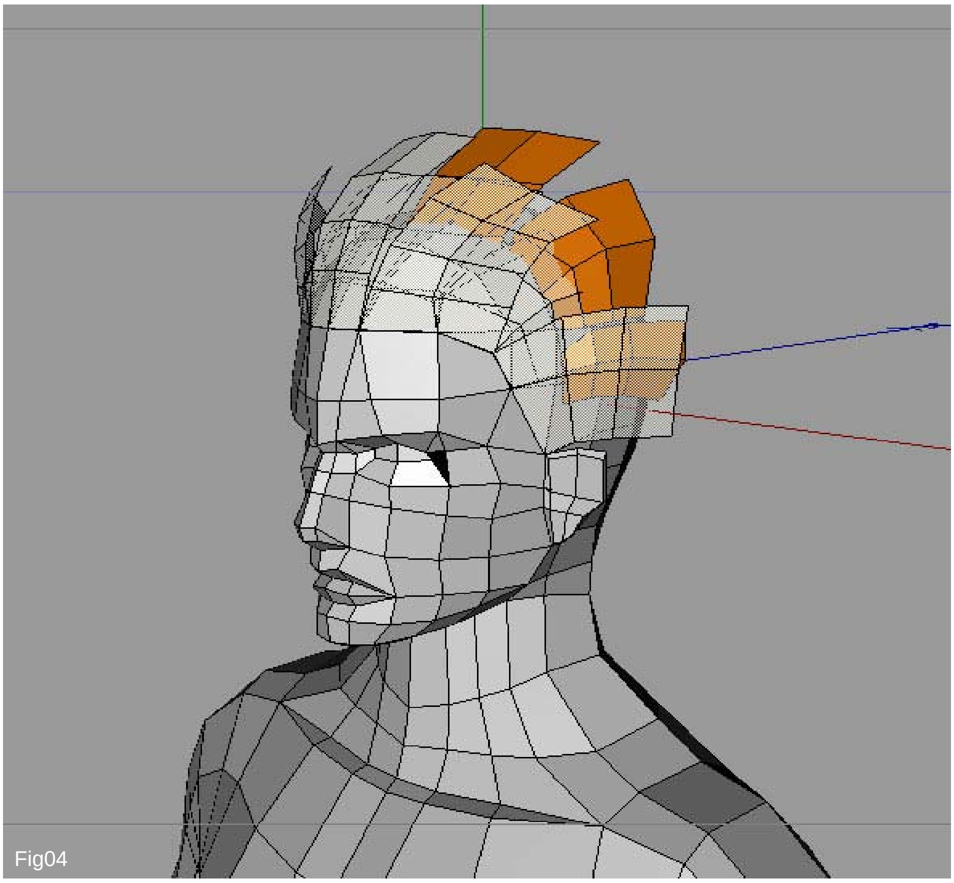


Fig04

4. For the next step we are going to duplicate this new set of poly's and move them behind the second row except this time we shall ignore snapping the verts to any on the scalp (Fig04).

5. Now we have to build the back section of the hair. In Fig05 you can see a large orange piece of geometry that has been positioned. To obtain these polygons split from the body the selected poly's like shown in the top left of figure. Then extrude the bottom edges three times and add a vertical cut to define the shape better.

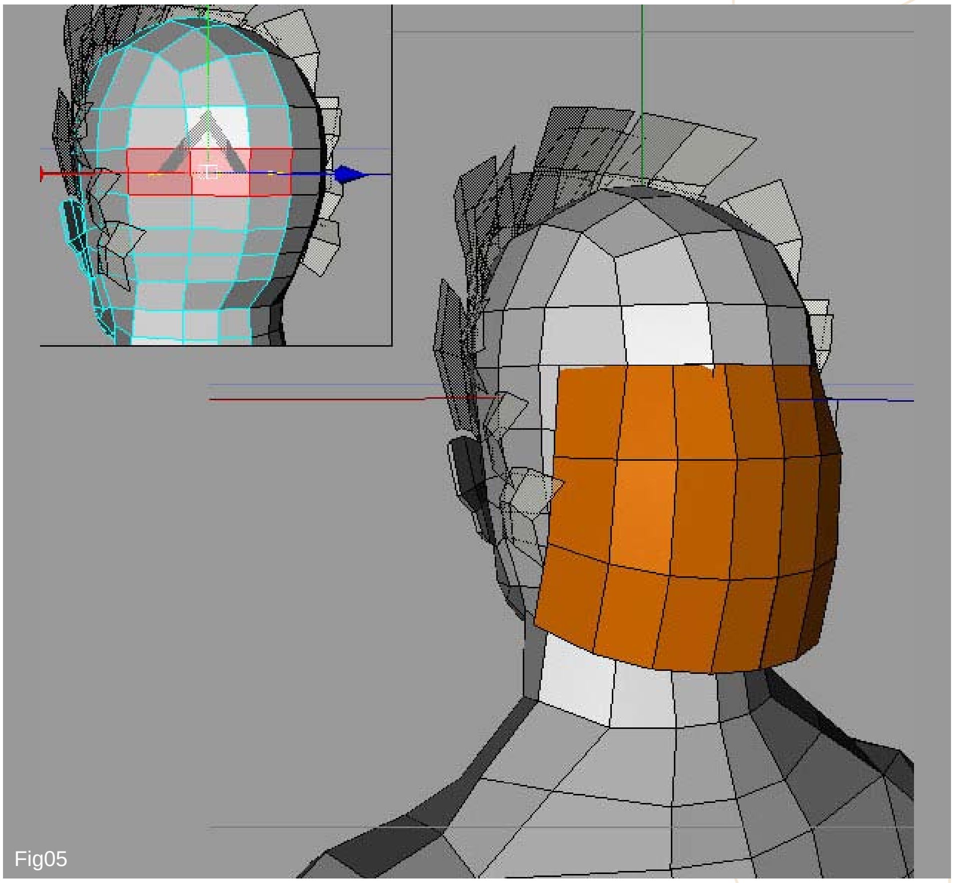


Fig05

6. The central sections are done by three rows of green polygons as seen in Fig06. Once again do not worry about the verts aligning, just concentrate on shaping the mesh to follow the shape of the head in the same way as we have done before.

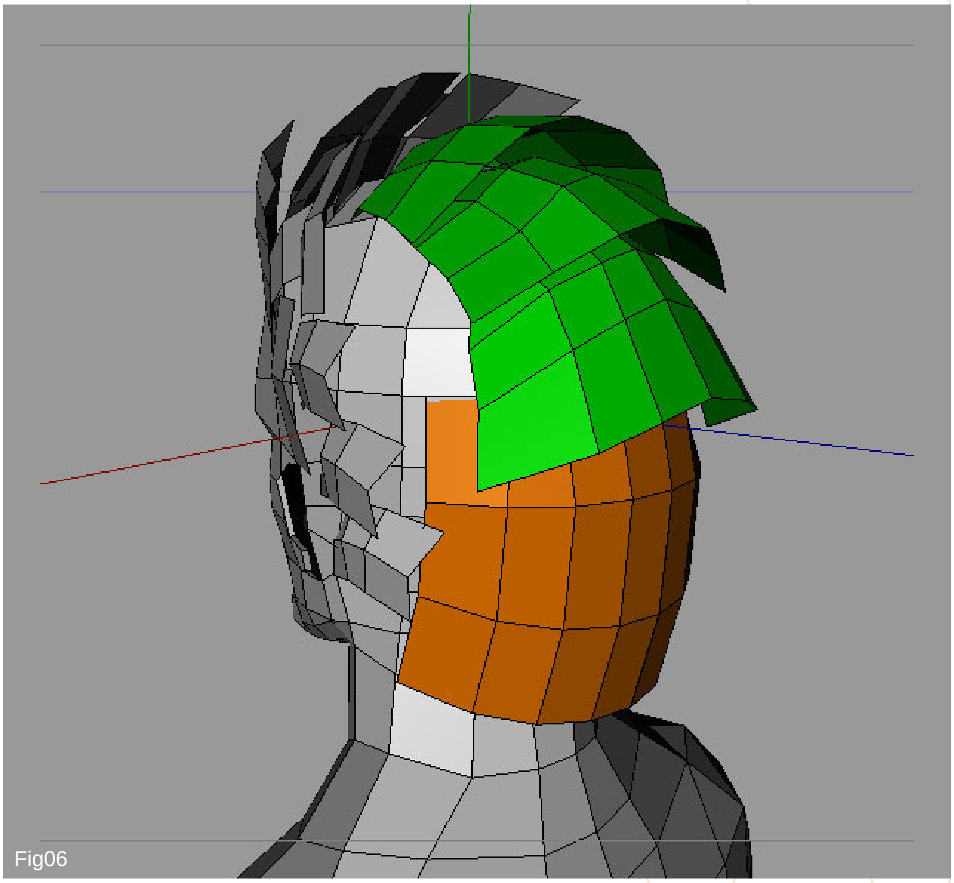


Fig06

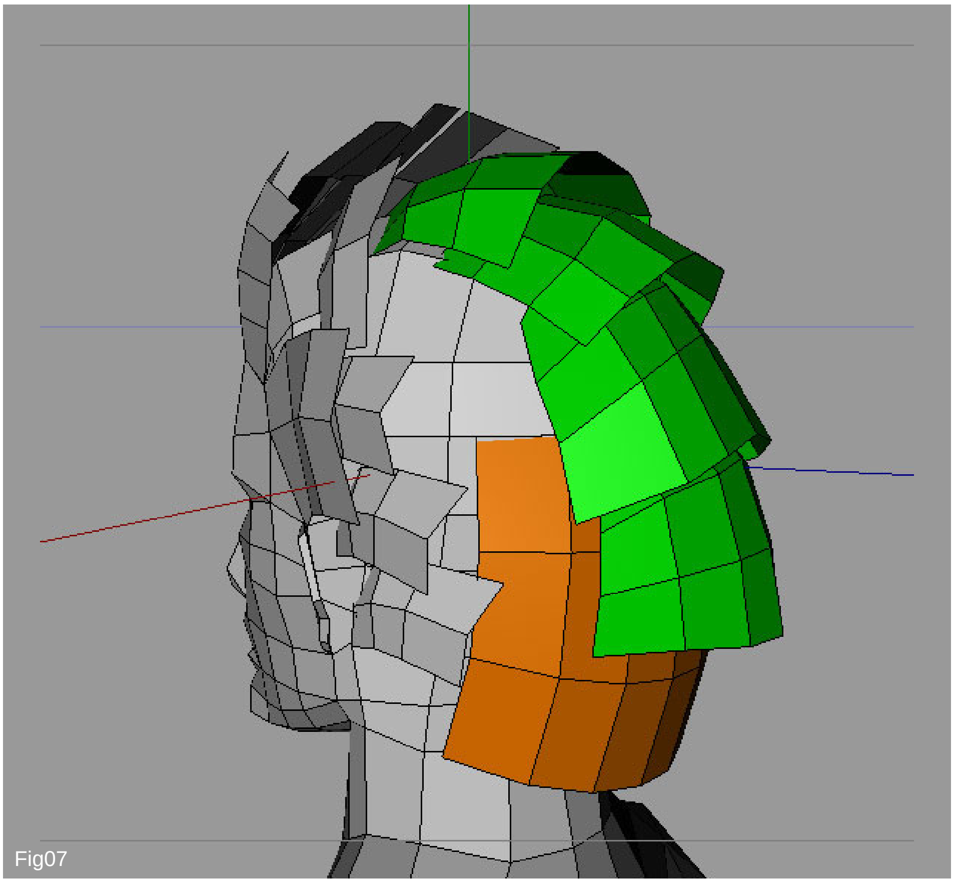


Fig07

7. To finish this section add one more row as shown in Fig07.

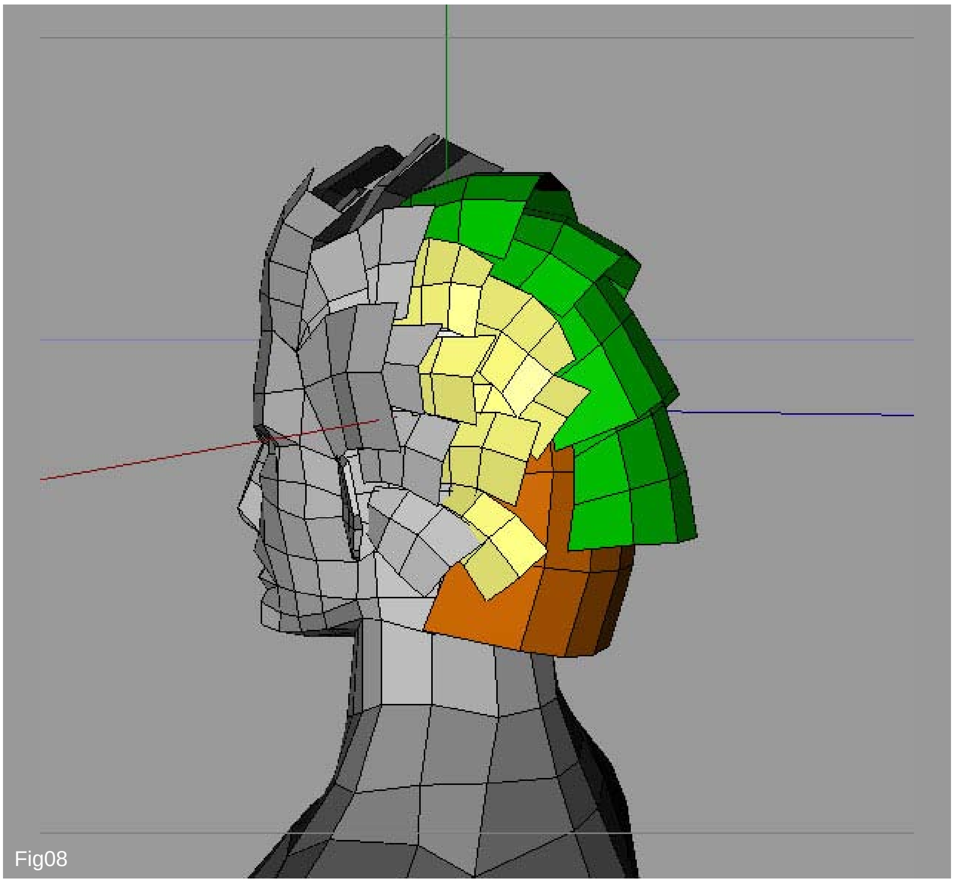


Fig08

8. The front, back and central section of the hair is now complete and all that remains to do is add in a group of planes that will form the sides as shown in Fig08 by the yellow polygons.

9. Adjust the mesh and finally the hair is done Fig09.

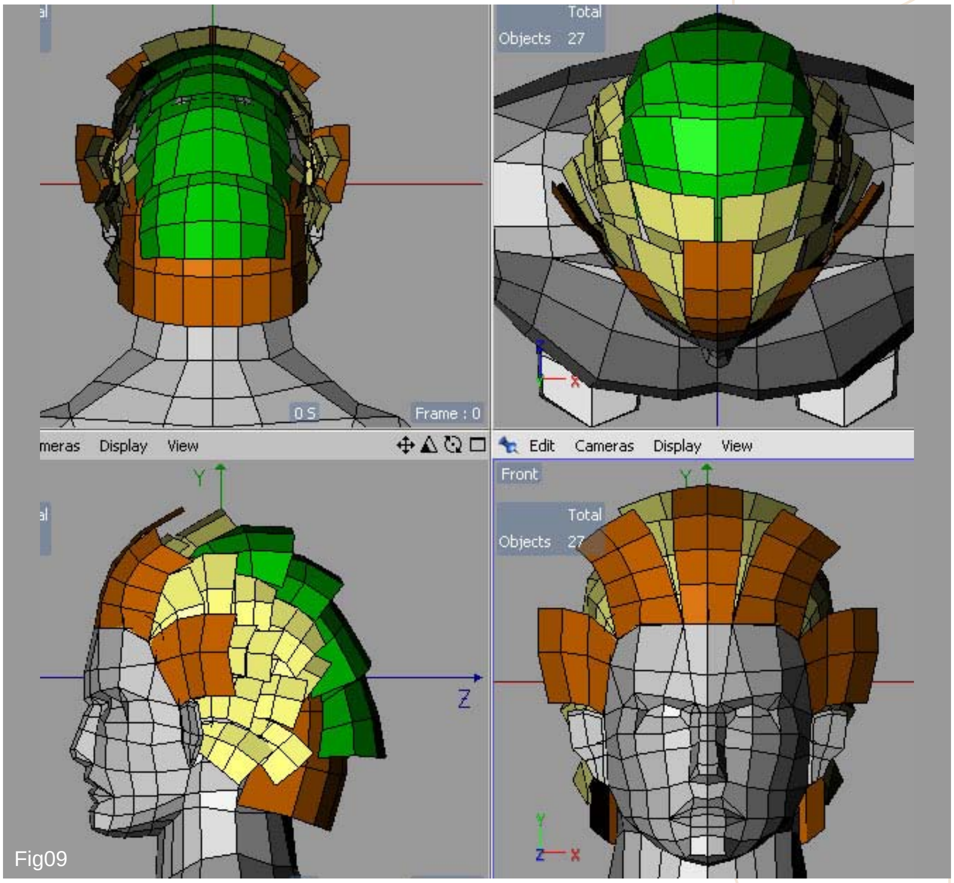


Fig09

10. Now we are going to add the clothing, the first part shall be the trousers. Select the polygons like shown in Fig10. Split them and scale them up slightly.

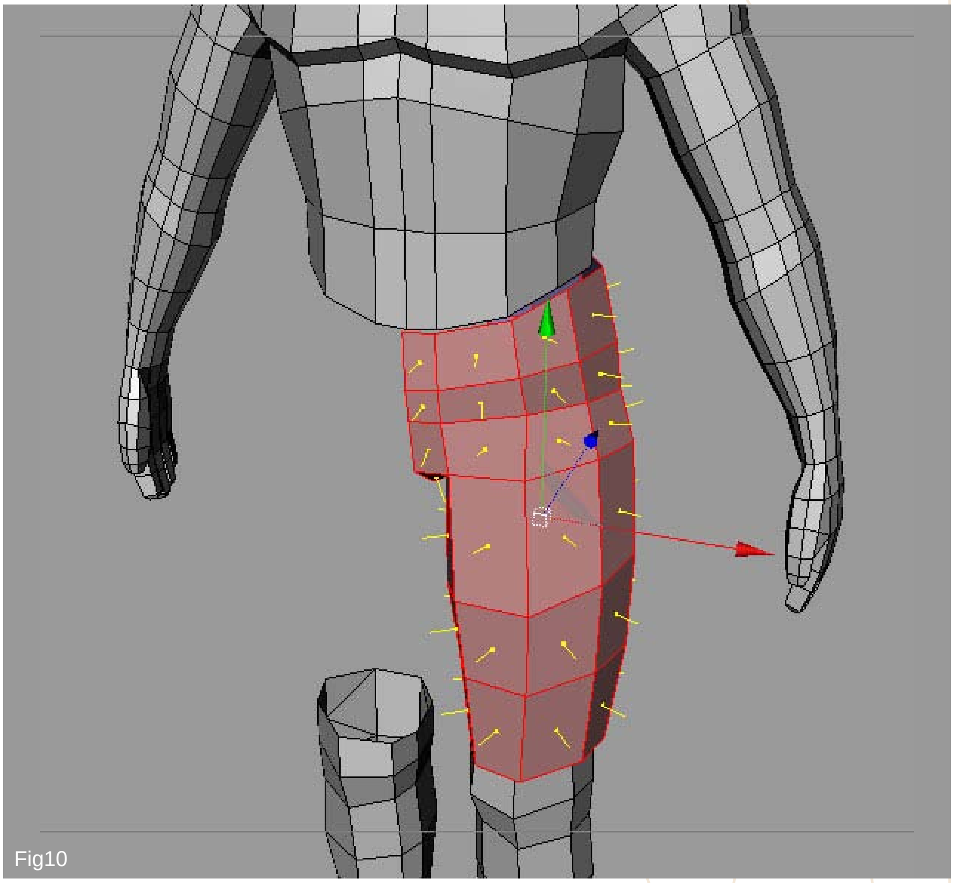


Fig10

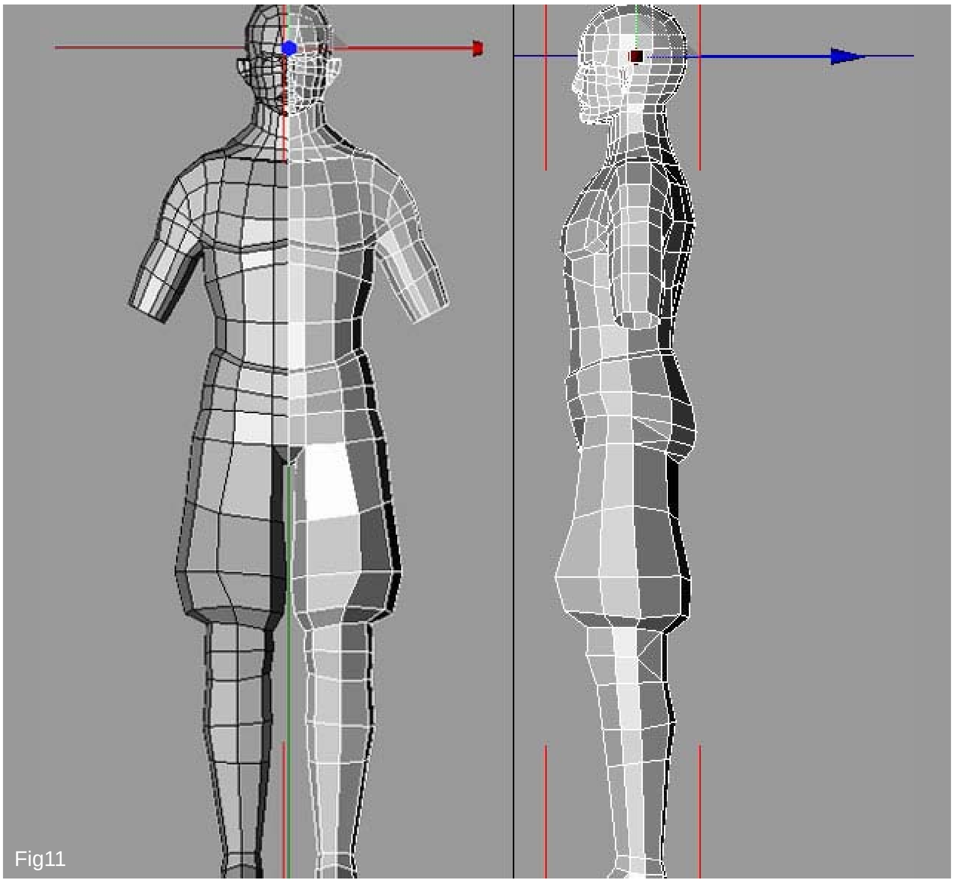


Fig11

11. With this done connect the two objects (body and trousers) and join them by using the “Bridge” tool. Then proced to transform the verts into positions that resemble Fig11.

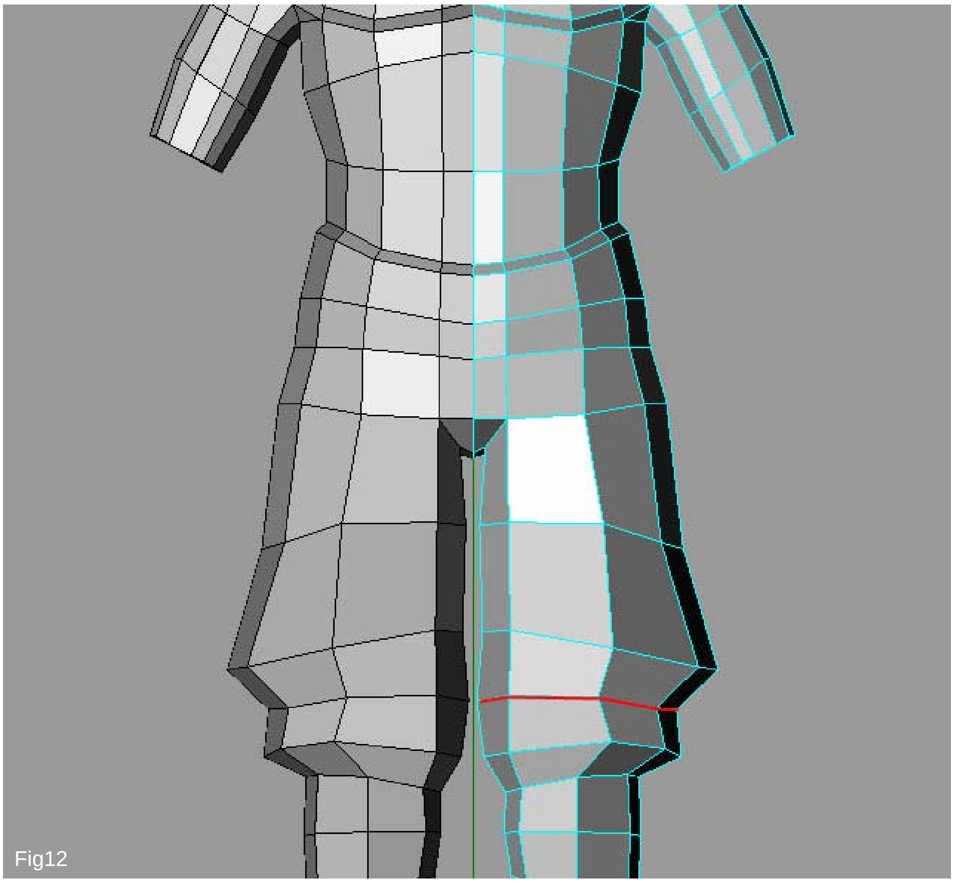


Fig12

12. Add now a cut like shown in Fig12.

13. Add a further cut from the front of the mesh and around to the back as shown in Fig13.

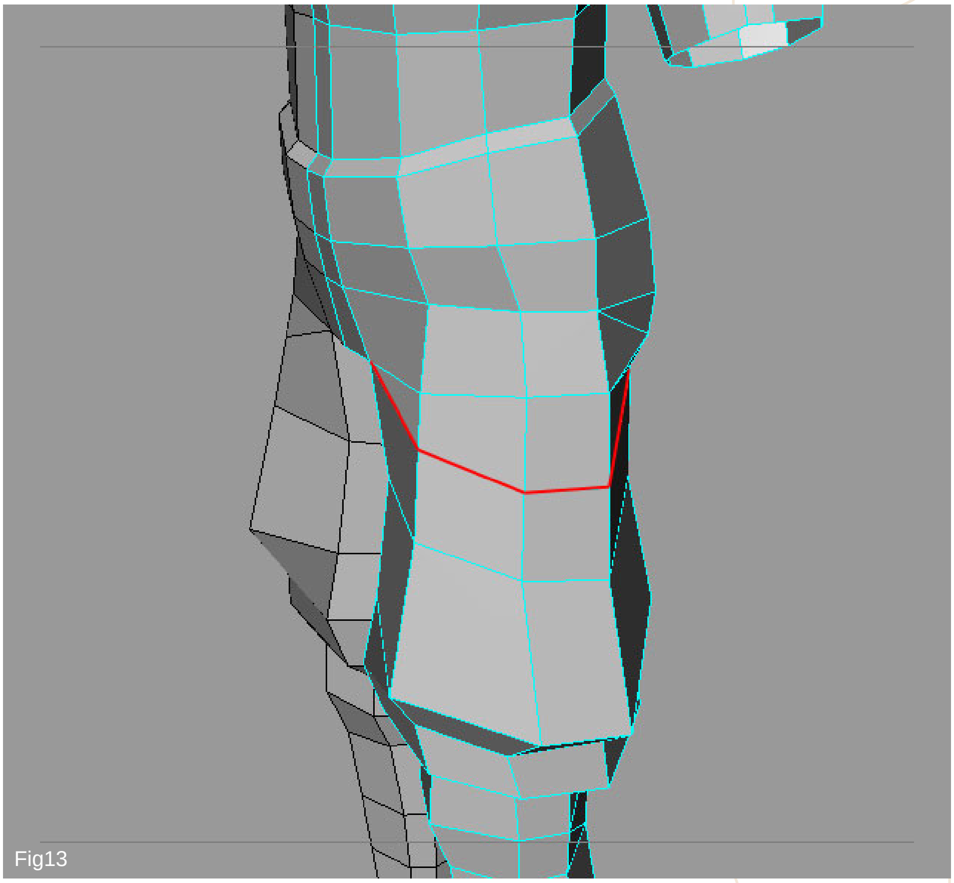


Fig13

14. The next stage involves making further cuts in along the lines shown in red in Fig14 (left) at the back of the trousers. This is to provide the correct creasing in the right areas and once done you can create quads like shown on the right of figure.

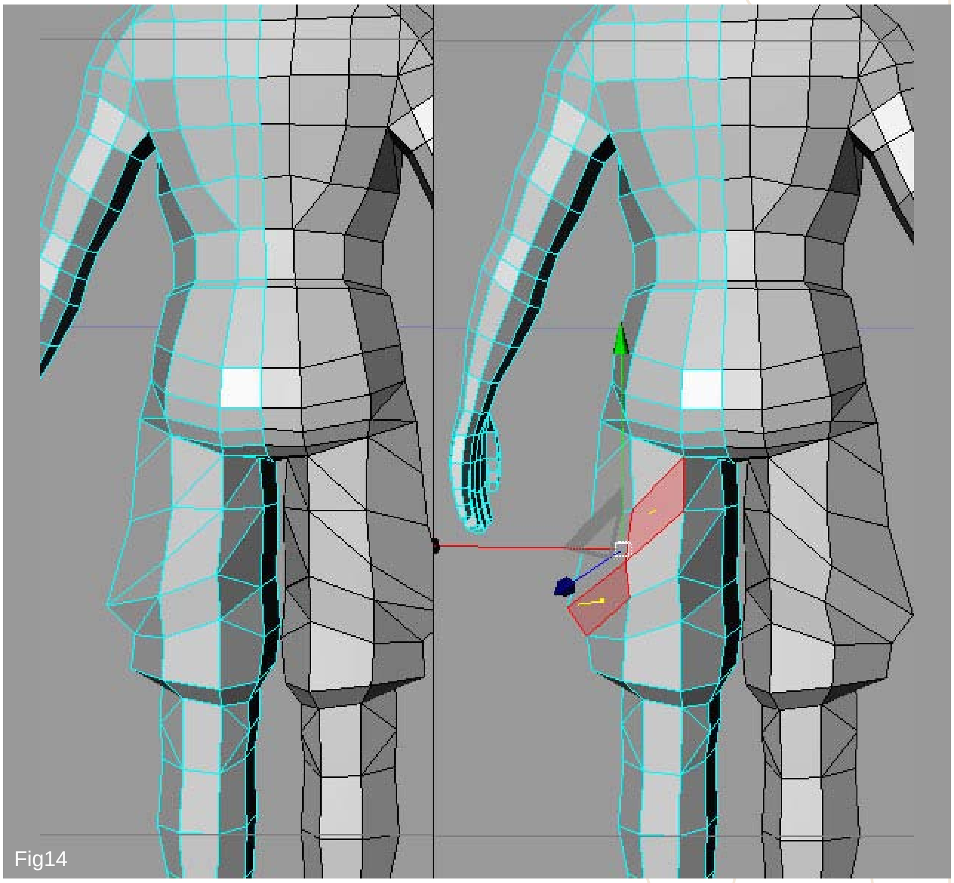
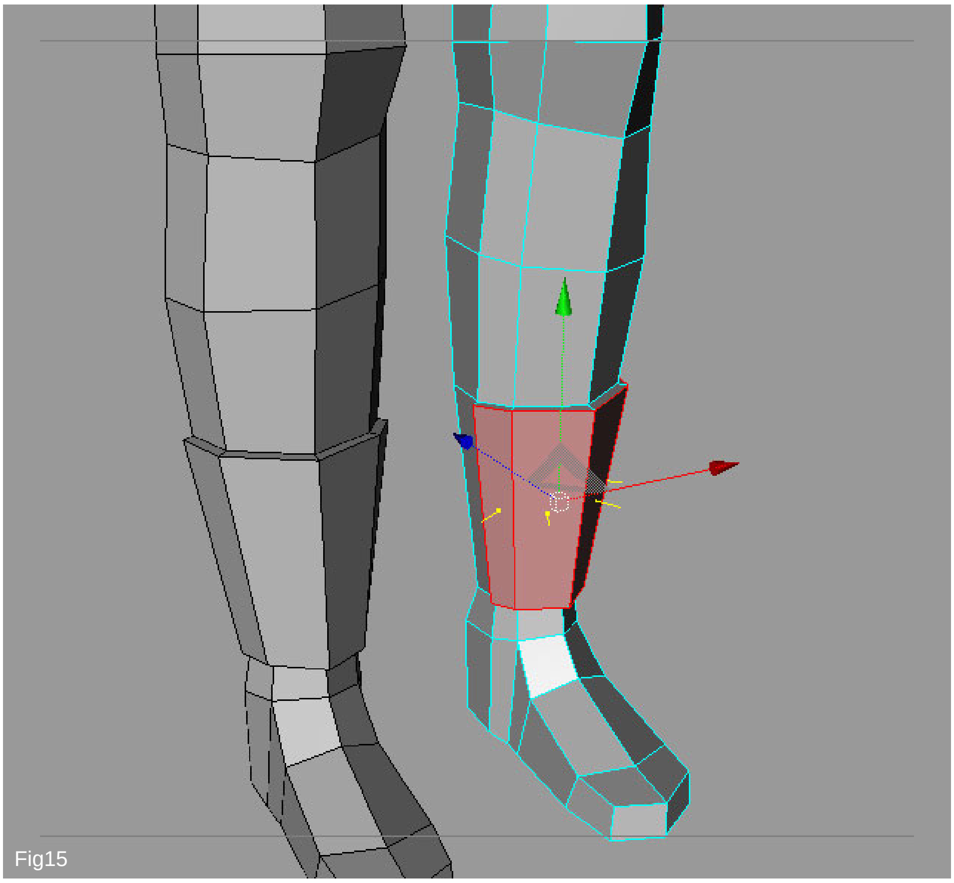
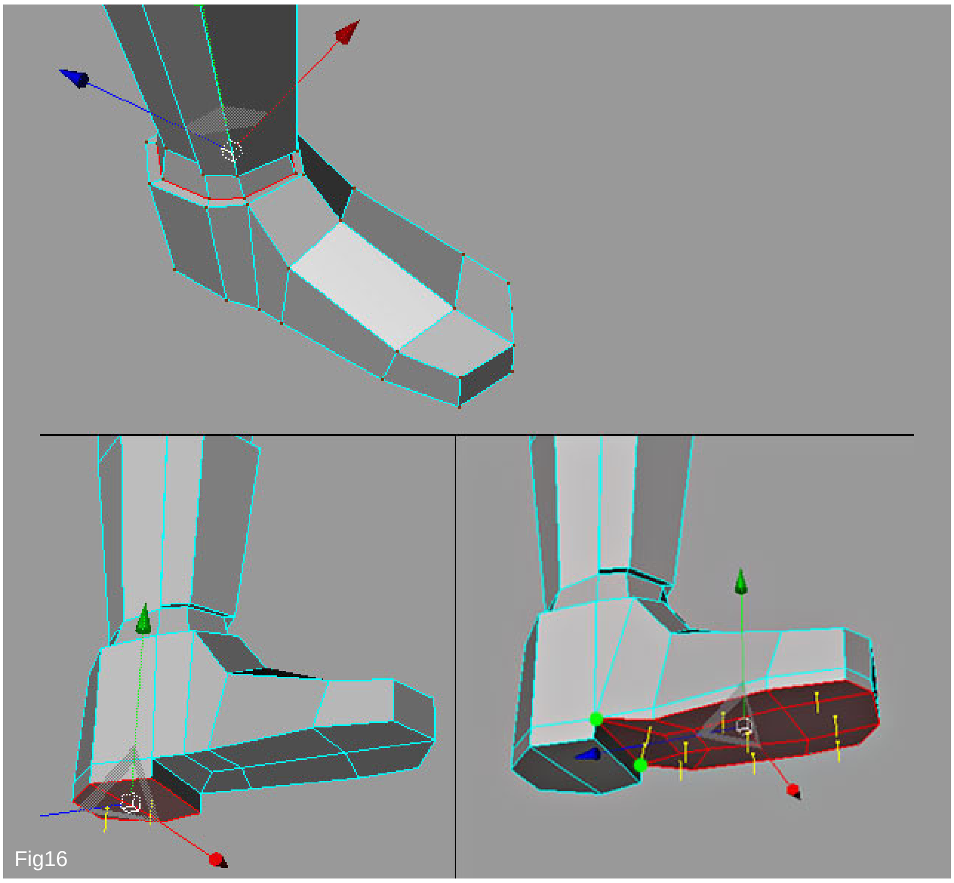


Fig14



15. Next item we will create are the shin guards. Select the group of poly's as seen in Fig15 and extrude them.



16. Now onto footwear. Select the foot and scale it then add a cut like shown in Fig16. Now we need to add a heel and sole to them so first select the two quads at the back and extrude them down as seen on the left of figure. Repeat this for the rest of polygons as shown in the right of figure. Weld now the two verts furthest back on the second extrusion to the ones at the upper front of the heel (green dots on the right).

17. For the Kneepad select the faces shown in red in Fig17 and split them from the body. This, as you already know, will create a new object which we can scale according to the one shown on the right.

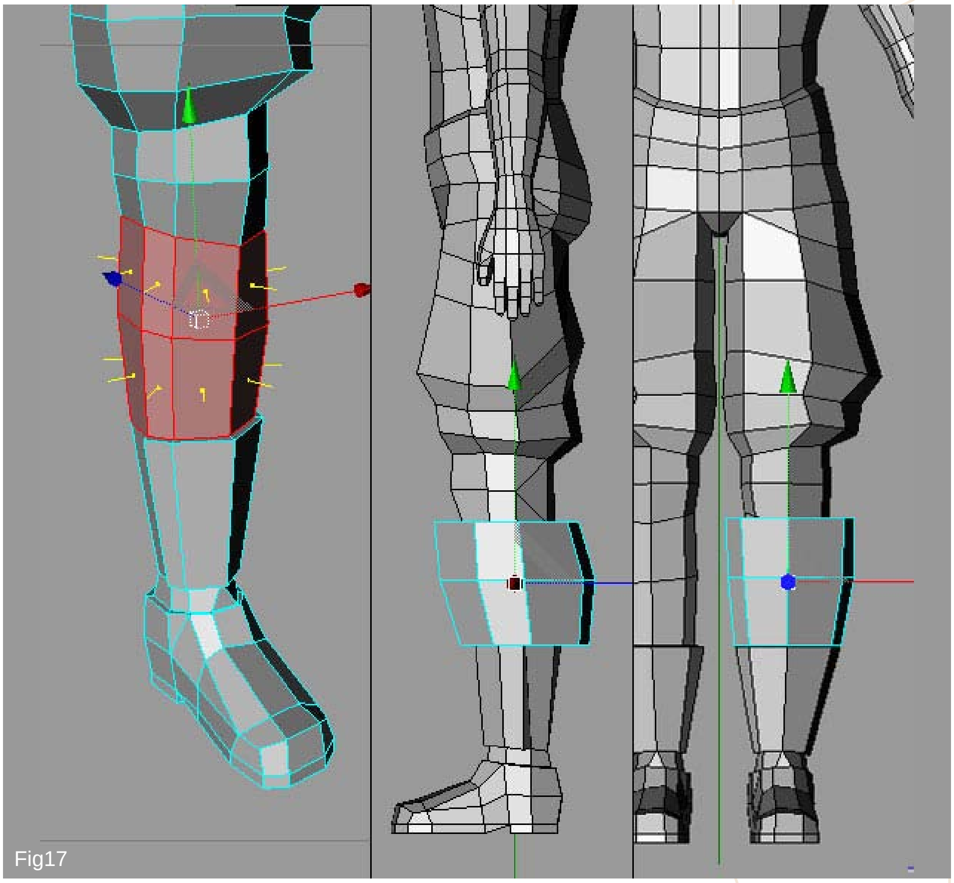


Fig17

18. You will notice that at the moment it has no depth (left of Fig17) so select all poly's and extrude them. Then build the inside using the "Bridge" tool. All that remains is to select the front two top poly's and do two extrusions scaling inwards slightly to form the upper part shown on the right.

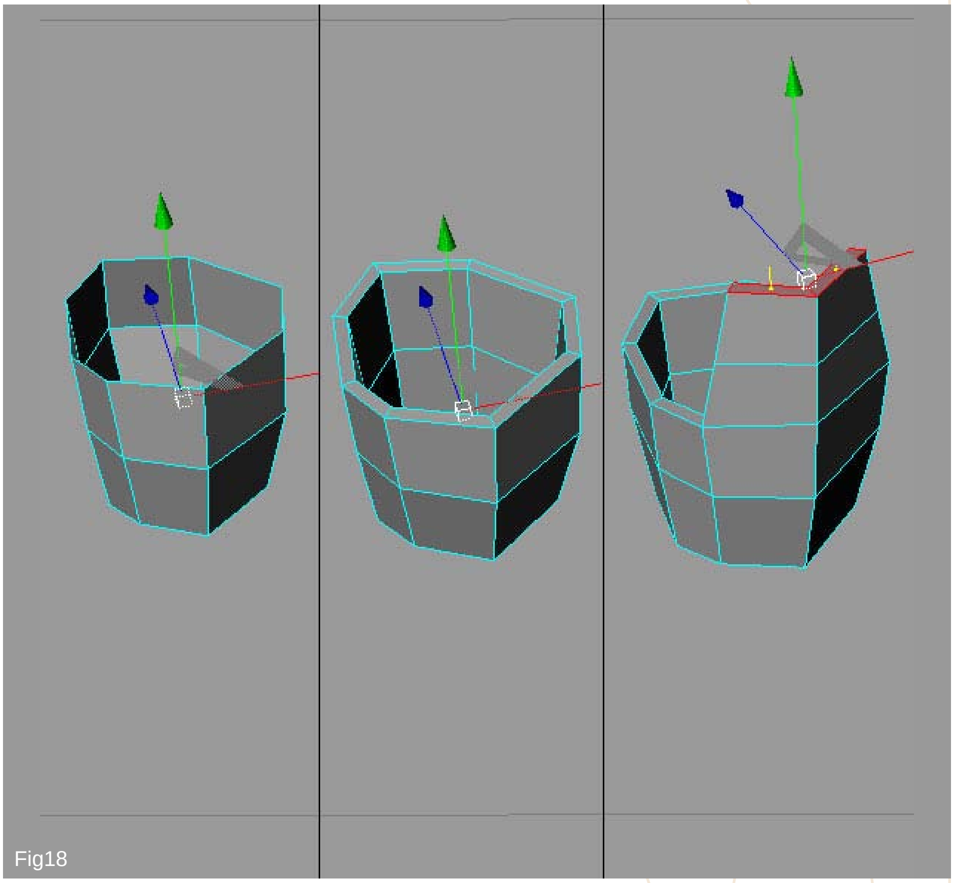


Fig18

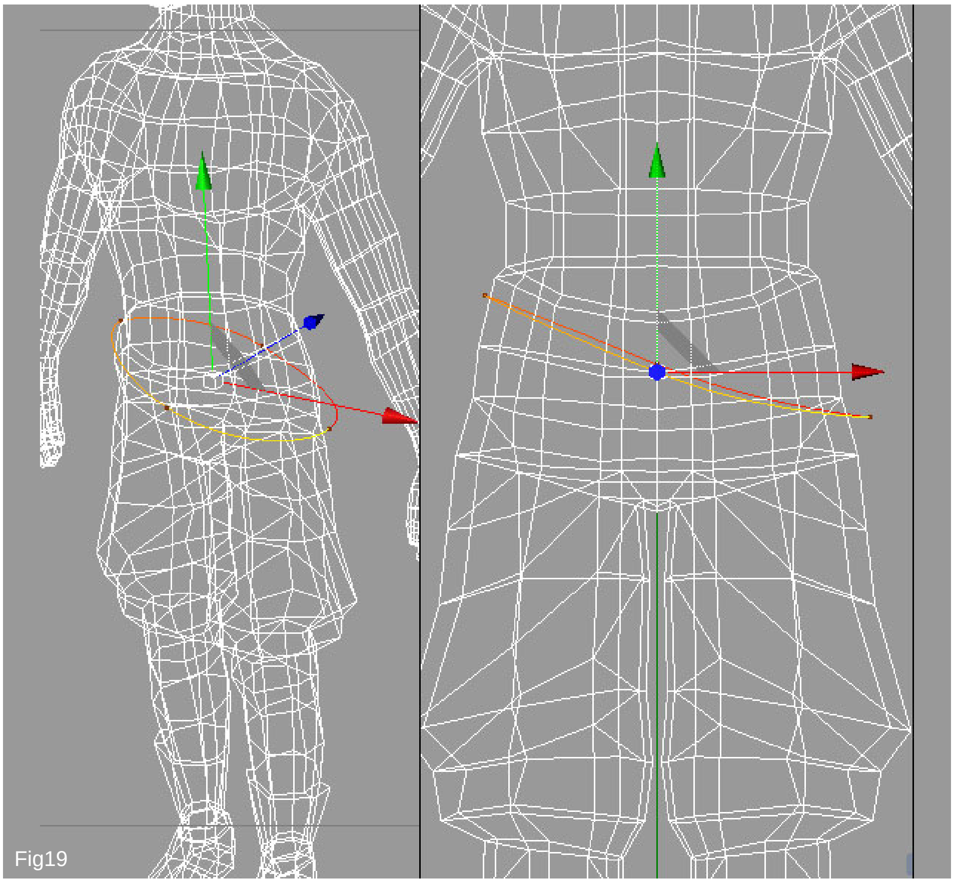


Fig19

19. This brings us to the final piece of clothing that we shall add in this tutorial; the belt. We will start by creating a Spline. So, from the main menu choose Objects > Spline Primitive > Circle. Make it editable and adjust the shape and its position like shown on Fig19.

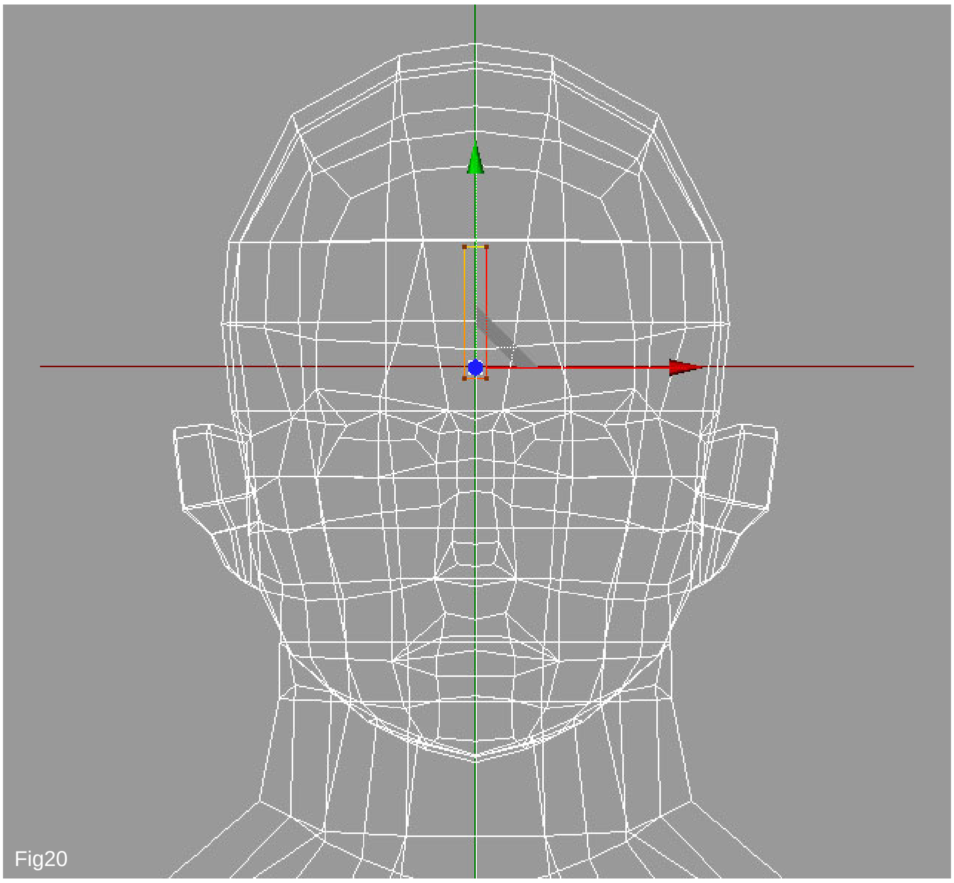
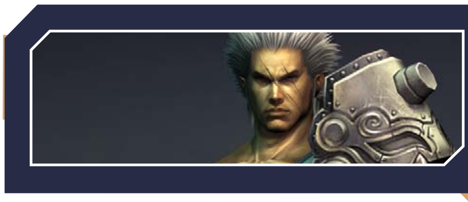
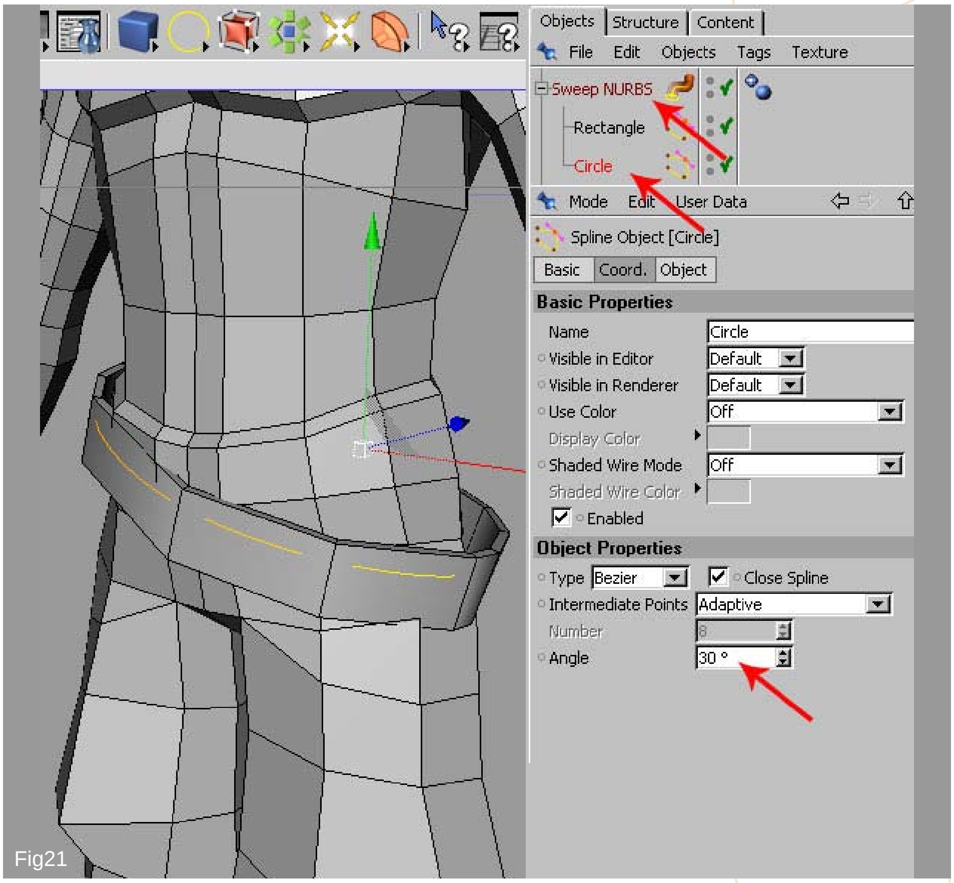


Fig20

20. Now create a Rectangle Spline and modify it as seen in Fig20.



21. Add a Sweep NURBS object (main menu > objects > NURBS > sweep NURBS) and drag in the two Splines like shown on Fig21 (top right). Now select the Circle Spline and in its properties modify the “Angle” as shown in figure.



Name: Circle
Visible in Editor: Default
Visible in Renderer: Default
Use Color: Off
Display Color
Shaded Wire Mode: Off
Shaded Wire Color
☑ Enabled
Type: Bezier
☑ Close Spline
Intermediate Points: Adaptive
Number: 8
Angle: 30 °

Fig21

22. Adjust now the shape of belt adding some cuts where the belt is intersected with the body and fit the verts around the mesh. Fig22

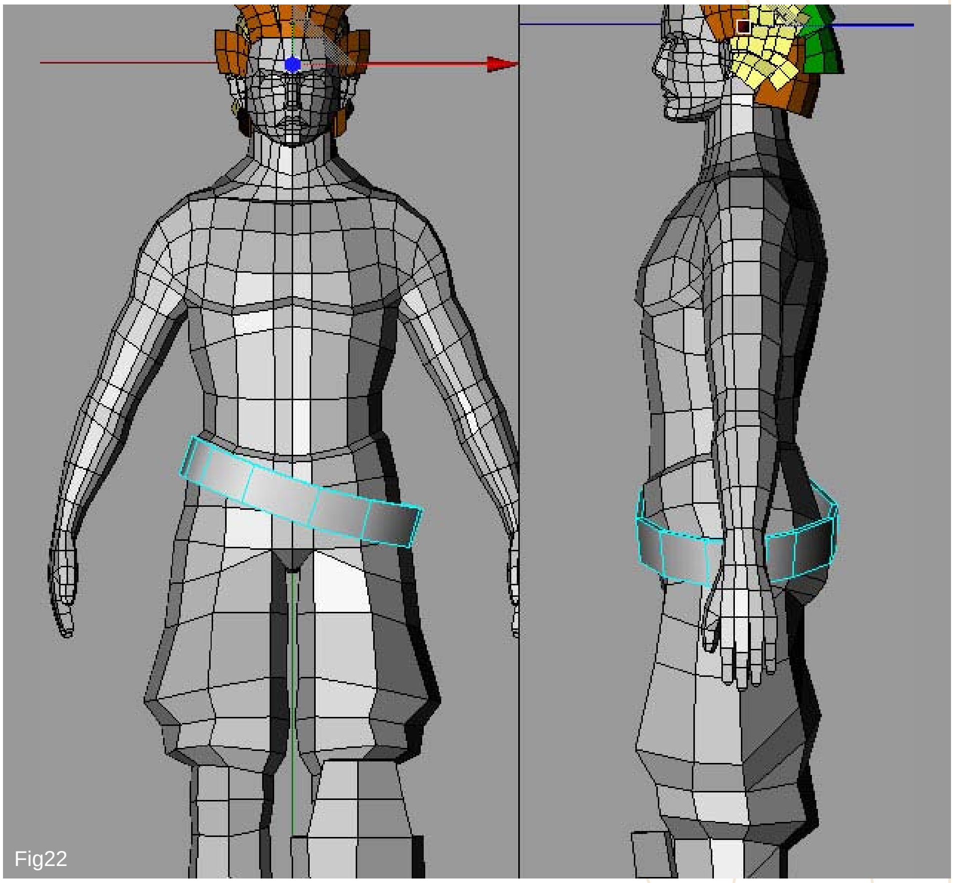


Fig22

23. With this done all that remains is to extrude five of the lower faces that make up the left underside and create the cloth that will eventually hang by his side (Fig23).

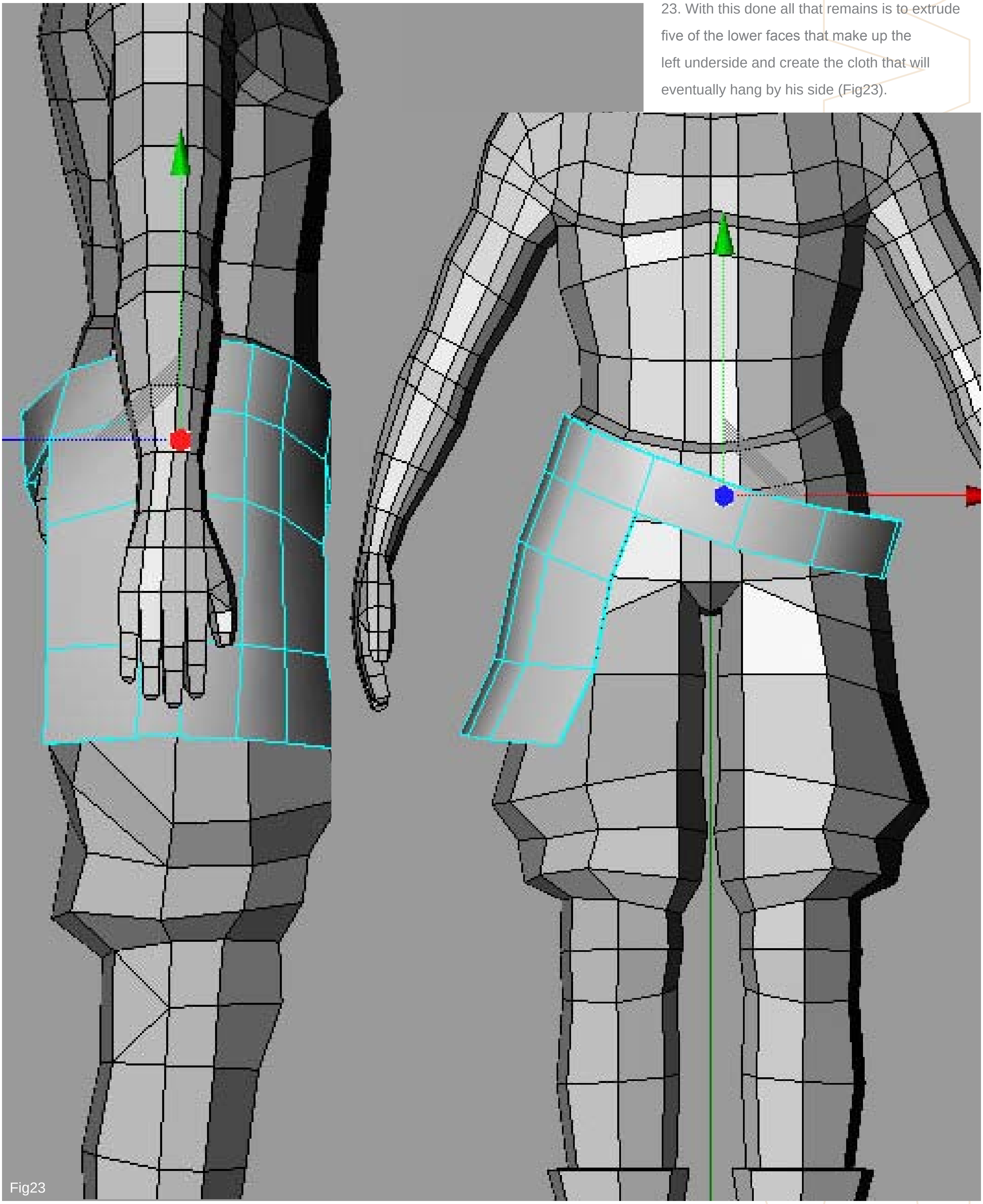
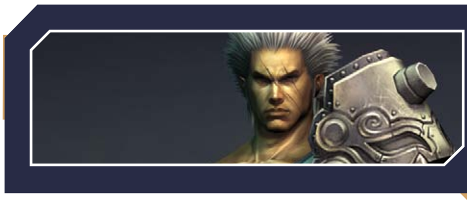
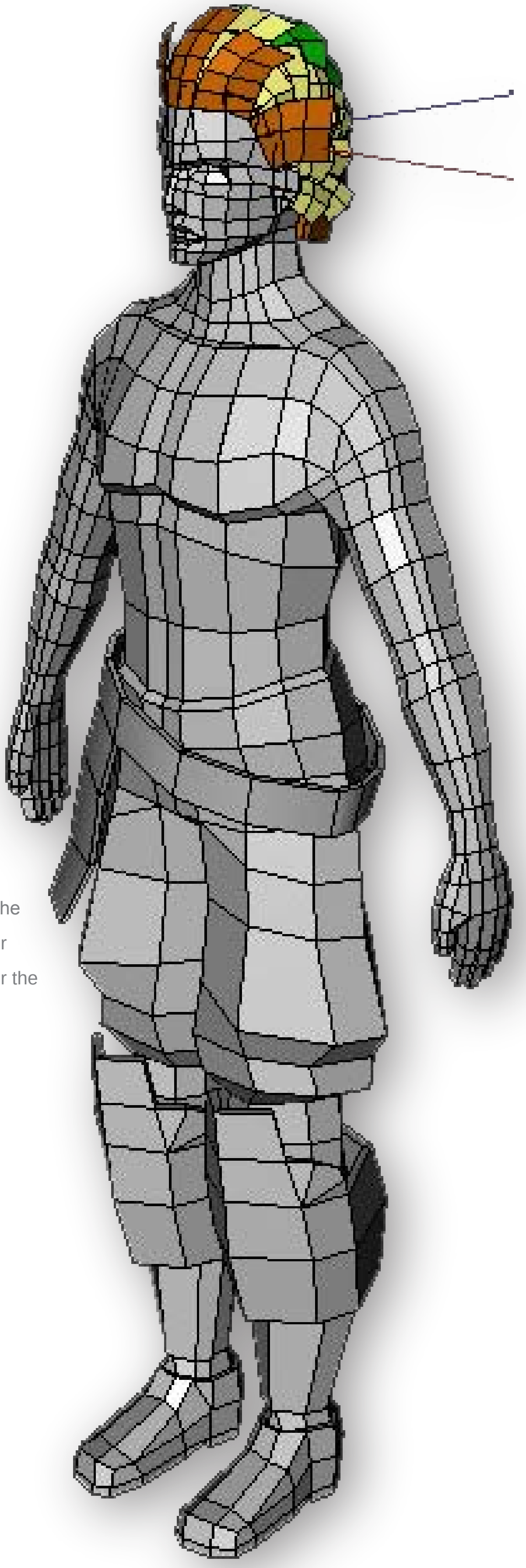


Fig23





Next month we shall go on and finish the modelling stages by adding the Armour elements before readying ourselves for the texturing phase.

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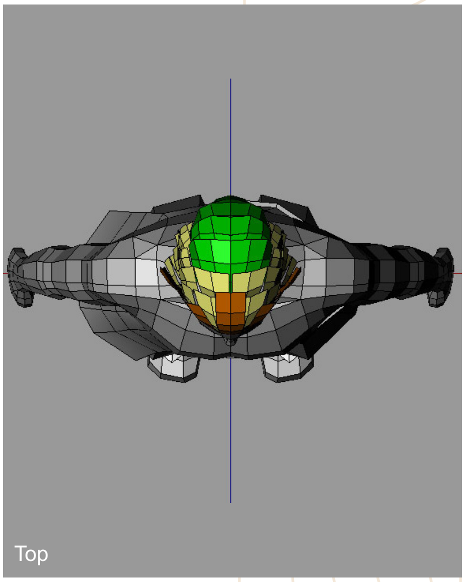
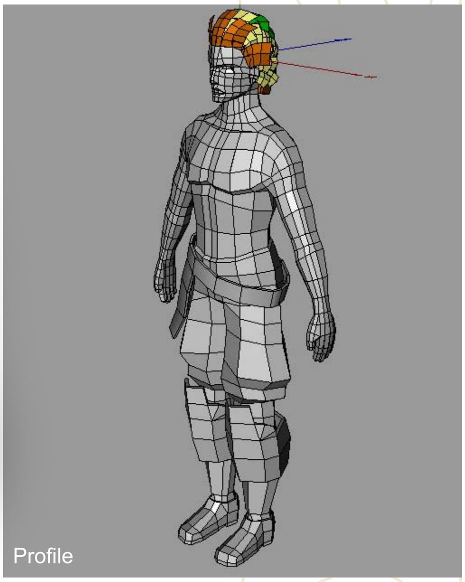
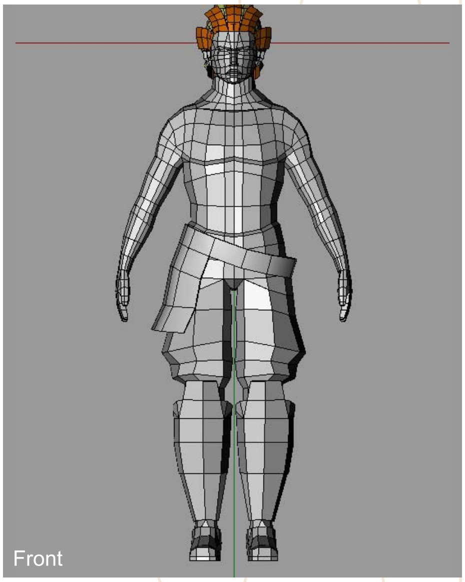


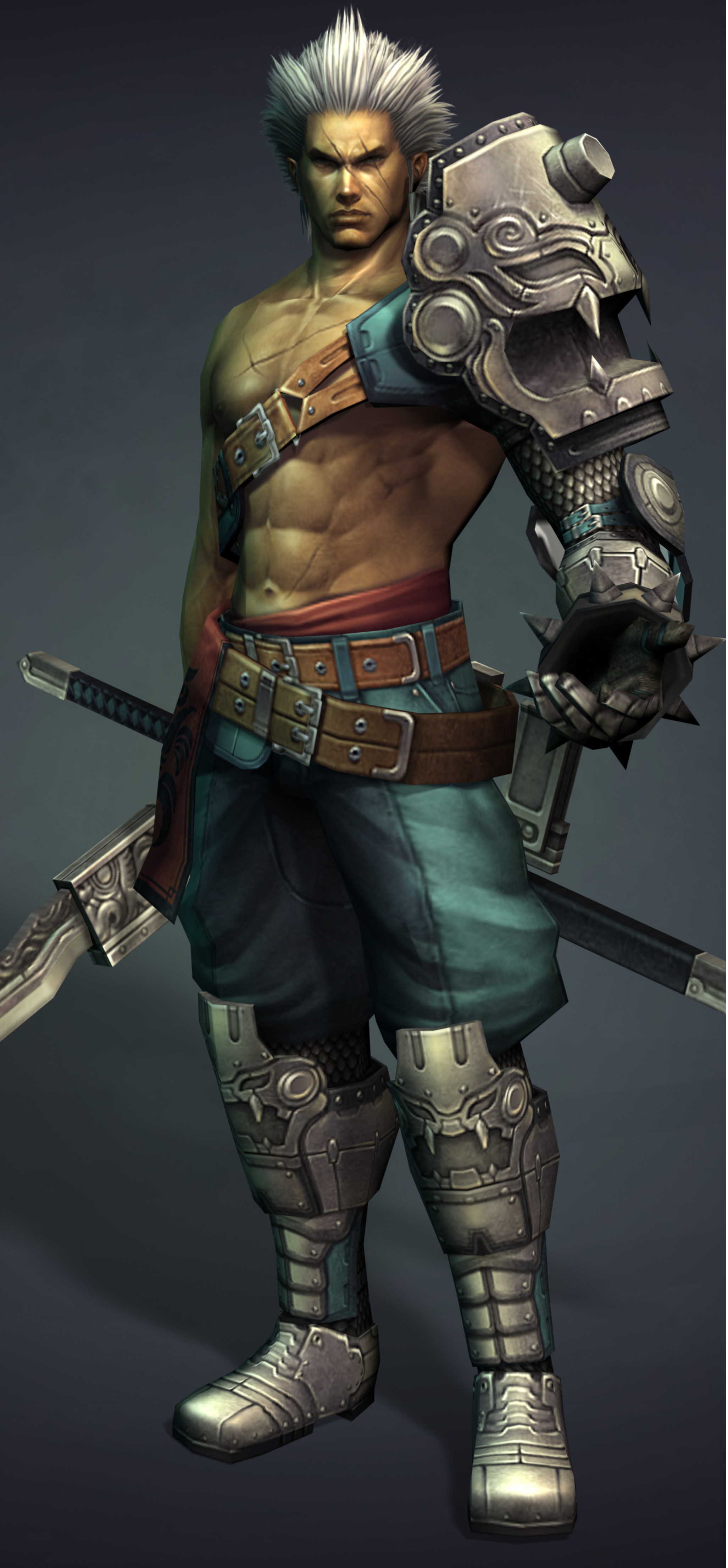
Top



Profile



Front



THE SWORDMASTER

lightwave

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Issue 009 May 06
MODELING THE HEAD
Issue 010 June 06
MODELING THE TORSO
Issue 011 July 06
MODELING THE ARMS & LEGS
Issue 012 August 06
MODELING THE CLOTHING & HAIR
Issue 013 September 06
MODELING THE ARMOUR
Issue 014 October 06
MAPPING & UNWRAPPING
Issue 015 November 06
TEXTURING THE SKIN & BODY
Issue 016 December 06
TEXTURING THE ARMOUR & CLOTHING

ENJOY ...

PART 4

MODELING THE HAIR & CLOTH

INTRODUCTION

Hello and welcome to the 4th part of The Swordmaster tutorial. Last month we built the character itself and now is the time to add hair and cloth to it.

1. Select 8 forehead polygons and copy them into a new layer. In side view, adjust the points so they closely fit the image. Be sure not to move the three front points. Cut these rearranged polygons back to layer one and weld the 3 point pairs where the joins are.

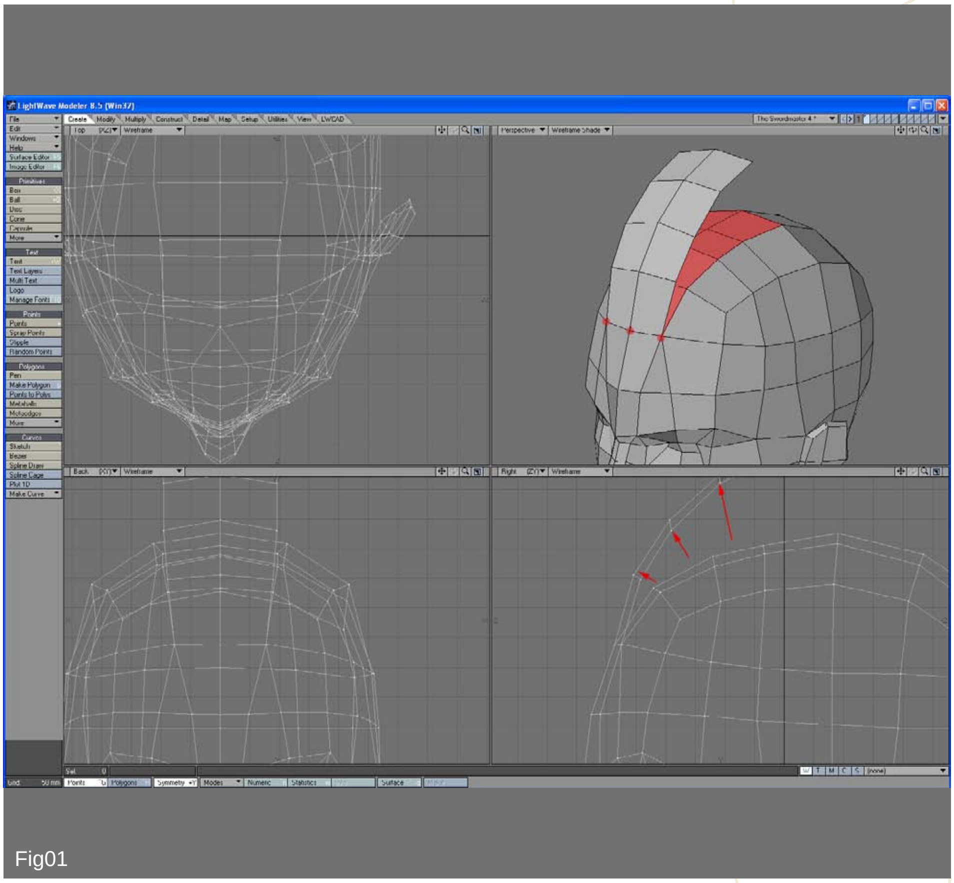


Fig01

2. Using the technique from the previous step, make two other hair groups. Adjust both of them and weld the front points to the head model. Please note, when you are using the Weld command on two or more points they are welded into the place of the last one selected. So in this case, the last point should be the one from the head.

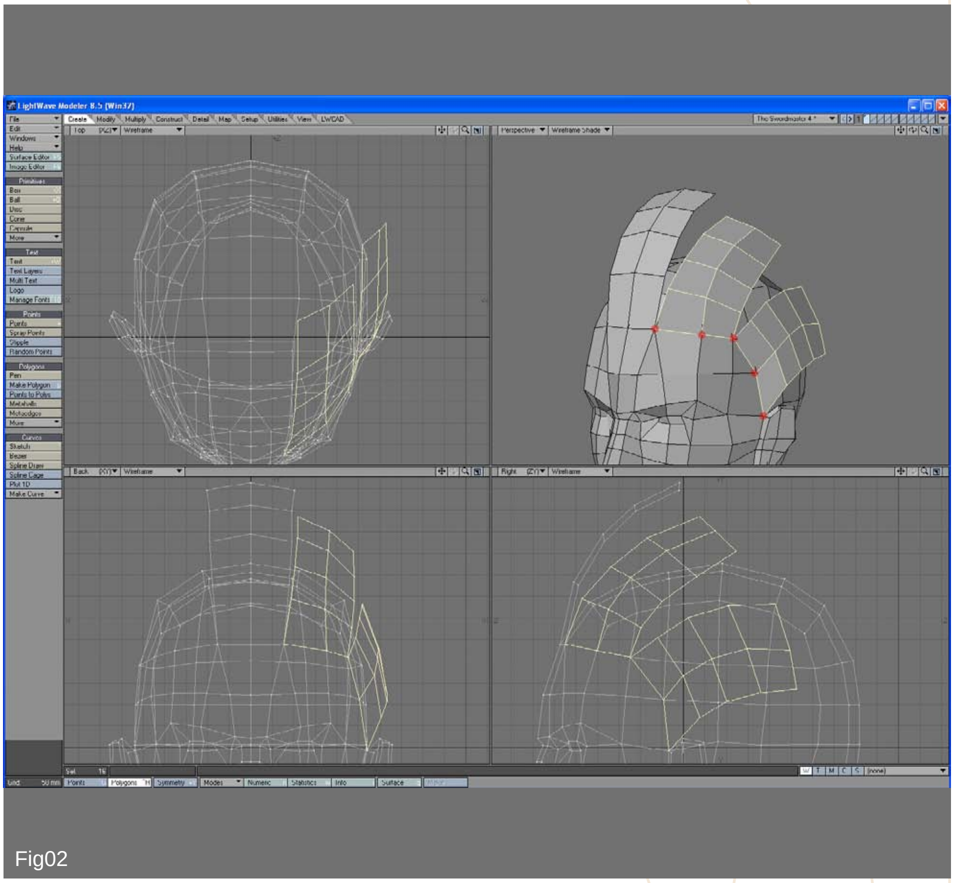
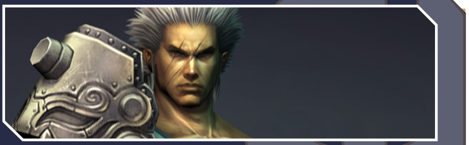


Fig02



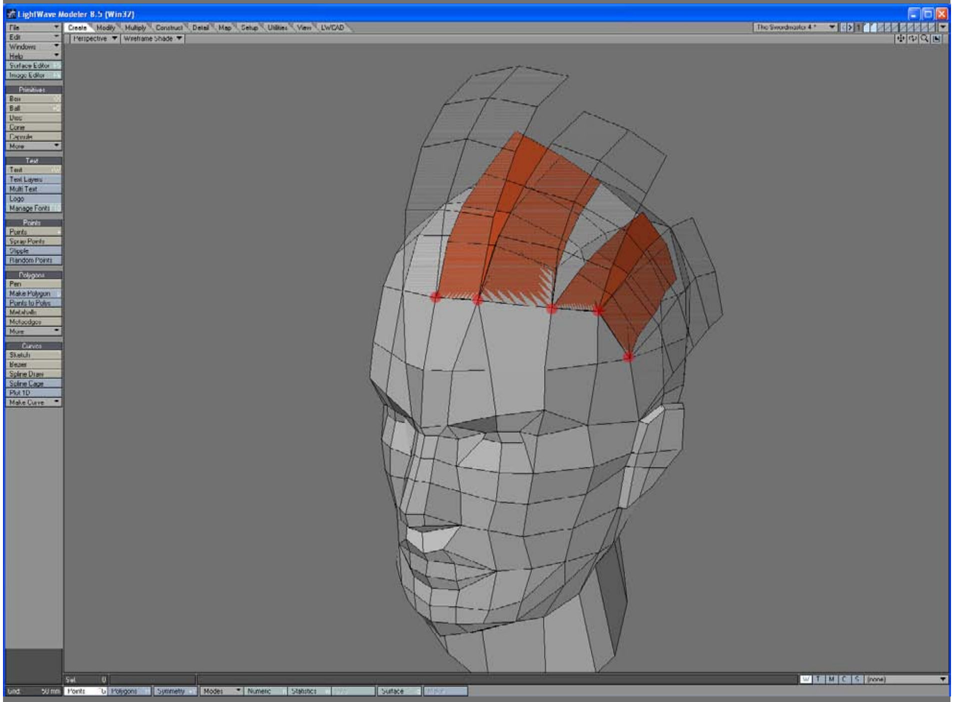


Fig03

3. We can now duplicate these two new hair groups into another layer and readjust them to make another layer of hair which lies beneath the first one.

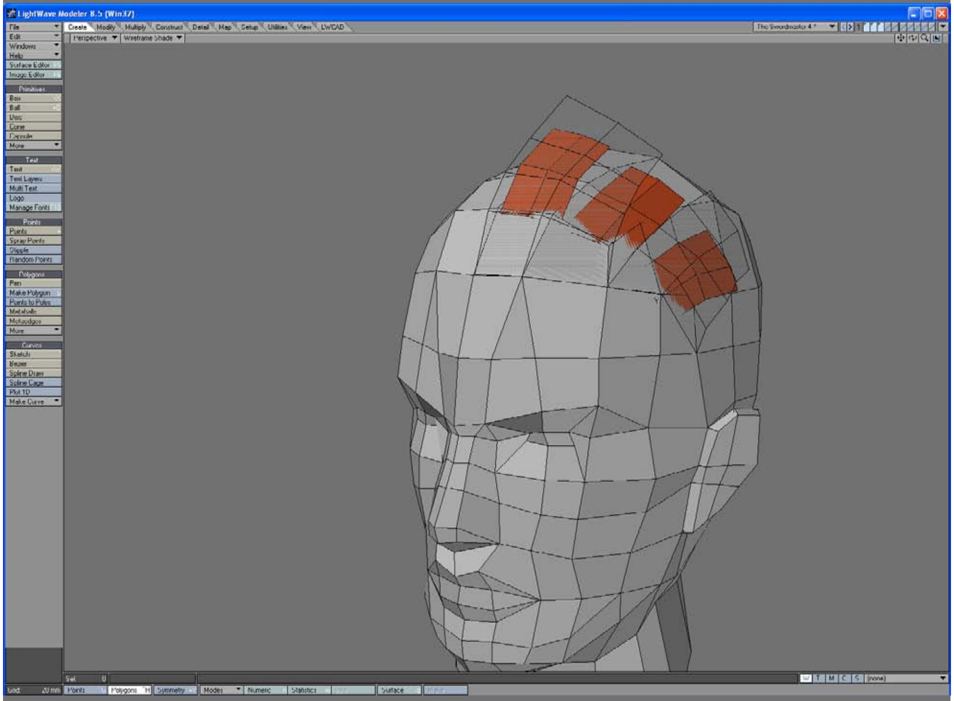


Fig04

4. Once again, make another three hair groups and this time don’t worry about aligning front points to the scalp.

5. Now we have the front parts of the hair let’s create the back parts. Copy 12 polygons from the back part of the head and rearrange them so they are forming the back part of the hair. Once you are done, make sure the middle points are at zero along the X axis (“v” for Set Value command, zero value, X axis) and mirror these polygons to the other part of the head.

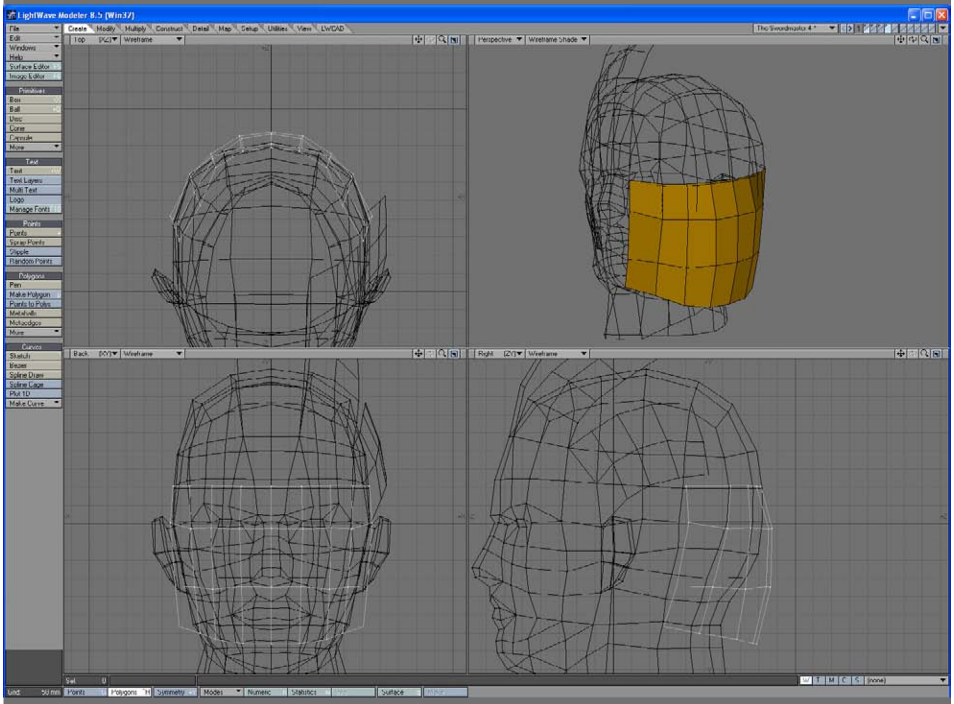


Fig05

6. For the central sections, make three rows of nine 4x3 quads and position them on the top of the head.

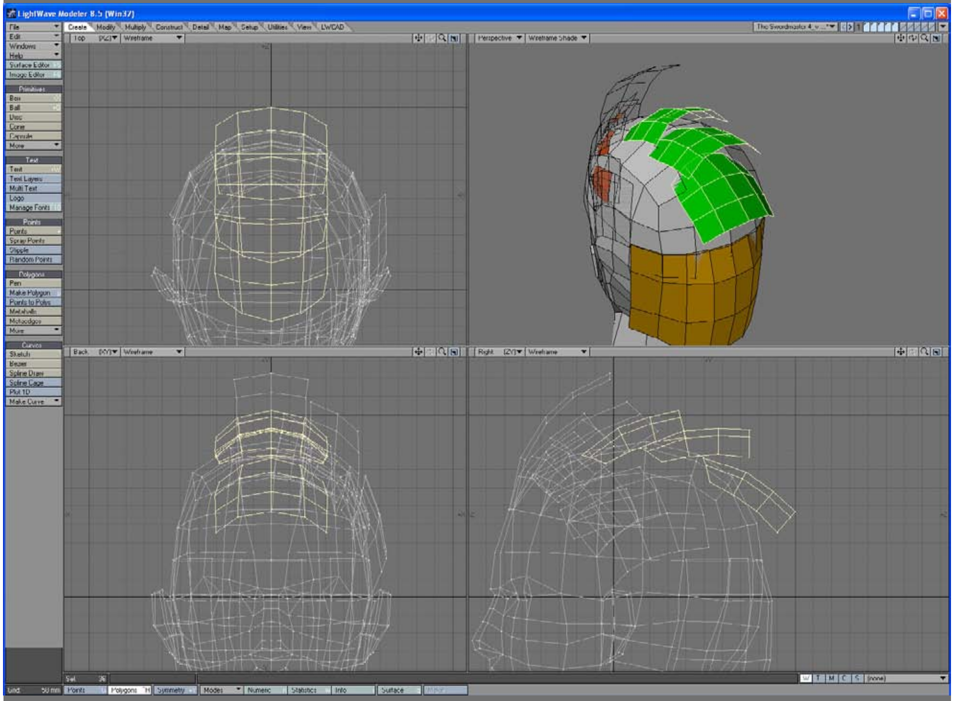
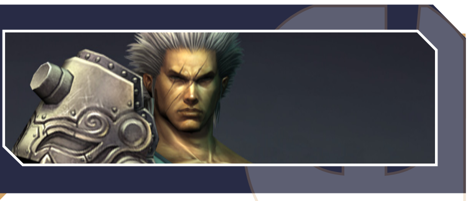


Fig06



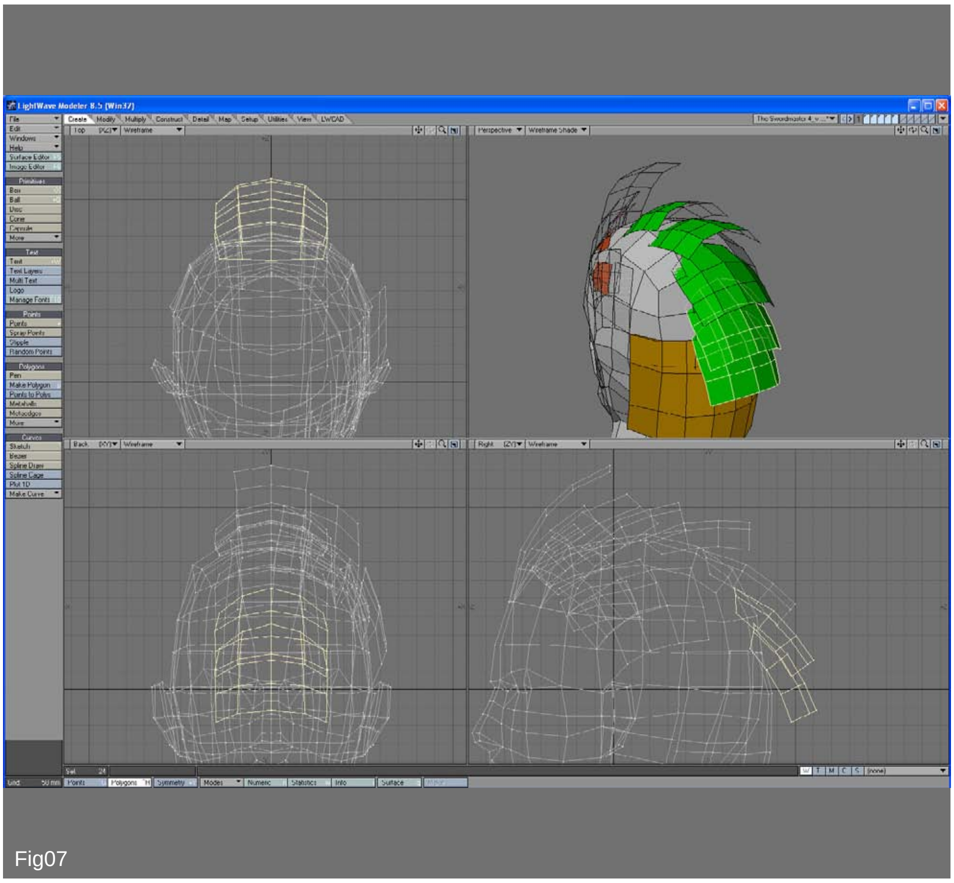


Fig07

7. Add two more central sections below the lowest one created in previous step, as its shown in Fig07.

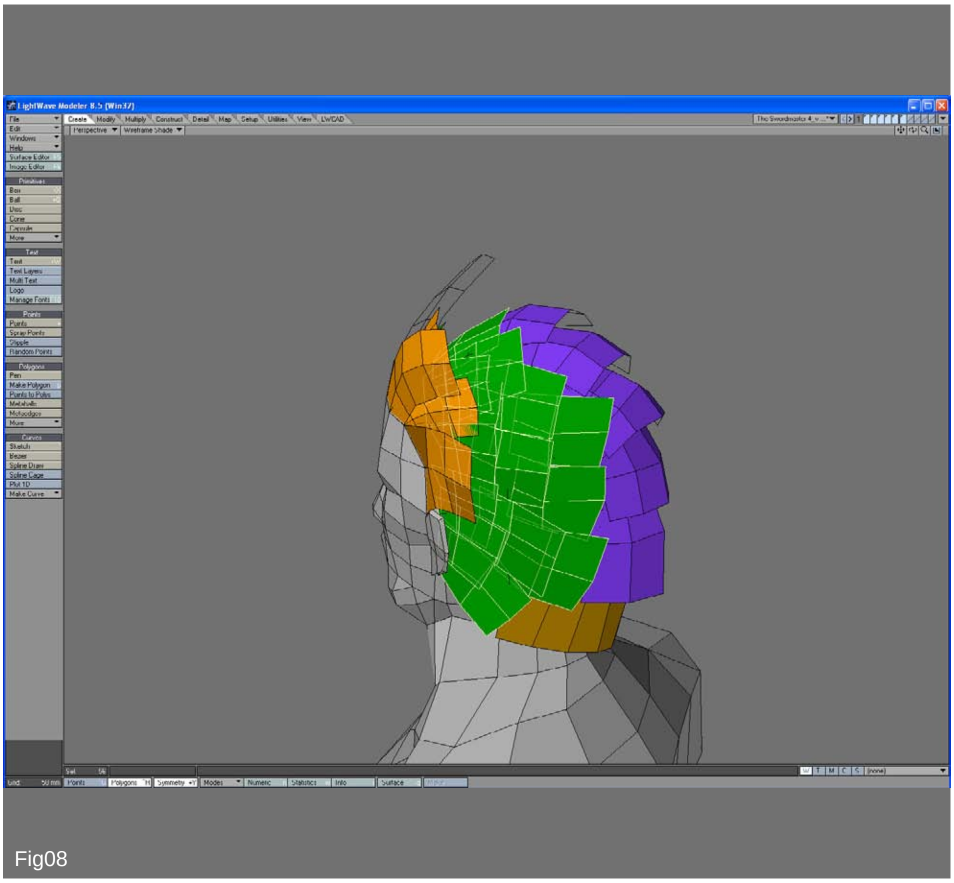


Fig08

8. Once we have the front, top and back hair parts we need to fill in the side gap. Use 2x2 quads and add them to the head. You don't really need to worry wether they are in the right place, basically all you need to do is to cover empty part of the head.

9. Mirror all left sides to the right side and make adjustments where is needed to cover the head.

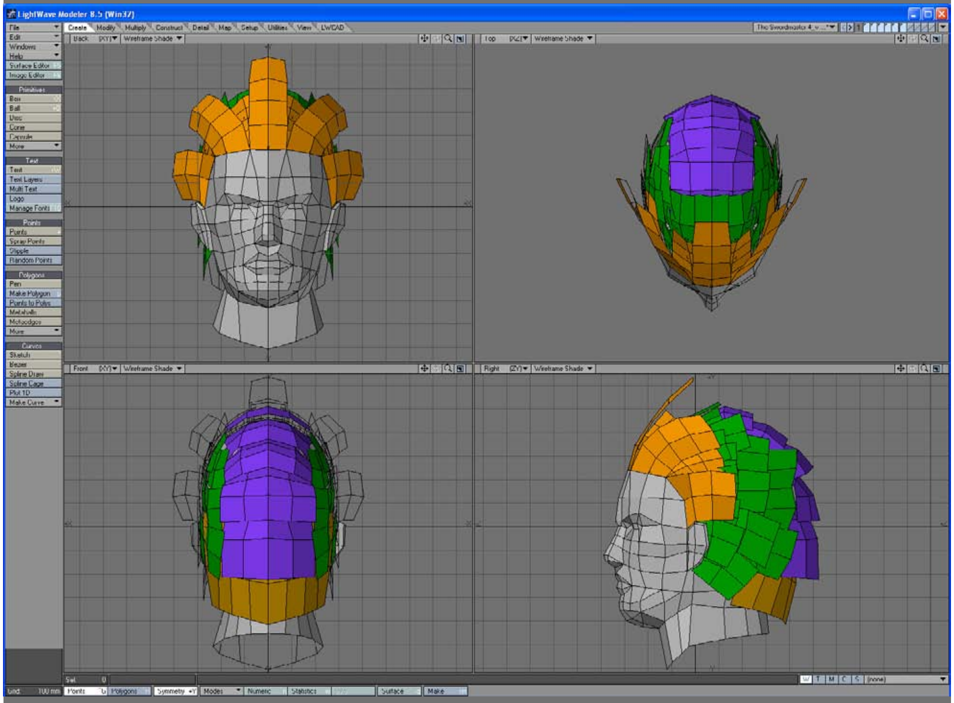
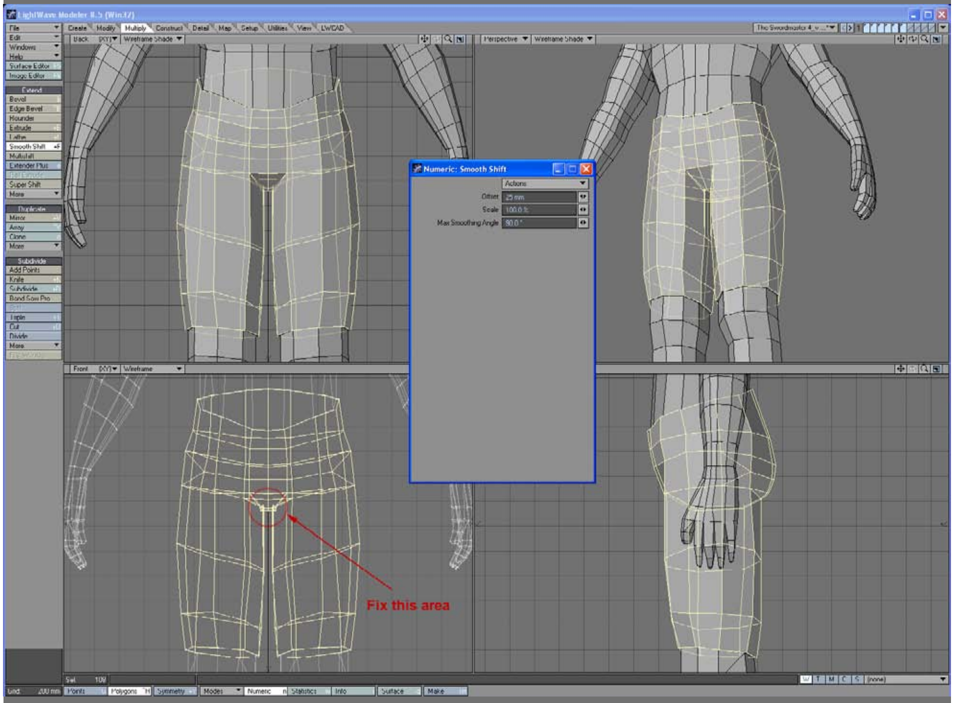


Fig09

10. When the hair is finished, we'll go on to add clothing to the model. Select the area for the trousers and apply a Smooth Shift to them, press "n" to bring up the numerical requester and change the offset value to about 25mm. This will move the polygons slightly away from the skin and add in between polygons. In the area between the legs, weld the ending points in corners into one on both front and back sides, press "w" to bring up the statistics panel, select all 1 and 2 point polygons and delete them. This will clean up any overlaping polygons added by Smooth Shift.



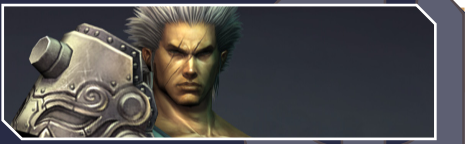
Numeric: Smooth Shift

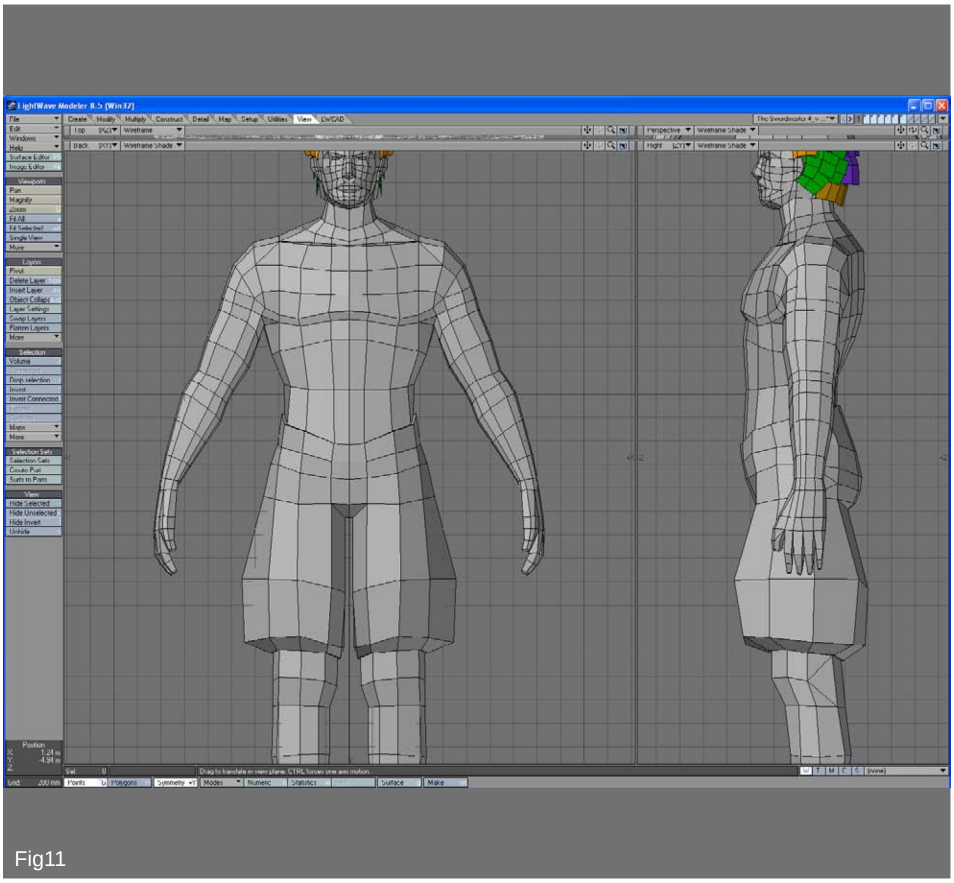
Offset 25 mm

Scale 100.0 %

Max Smoothing Angle 90.0°

Fig10





Drag to translate in view plane. CTRL forces one axis motion.

Fig11

11. Use the Drag tool and readjust points to gain a more trouser like shape.

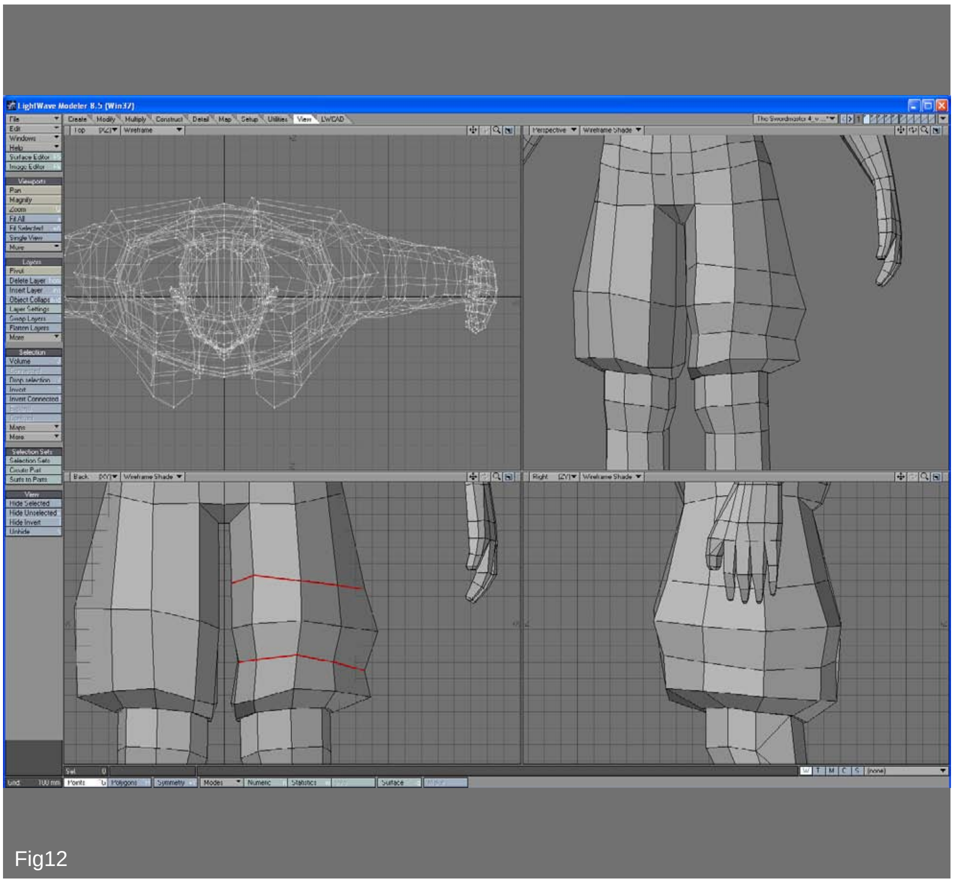


Fig12

12. Using the Bandsaw Pro tool add two cuts in the thigh area. After each cut switch to point selection mode and readjust the points as shown in the image.

13. Select the green marked polygons and apply a Cut command to them (make sure Terminate cuts is turned off). Weld the ending points of the cut to ones above them.

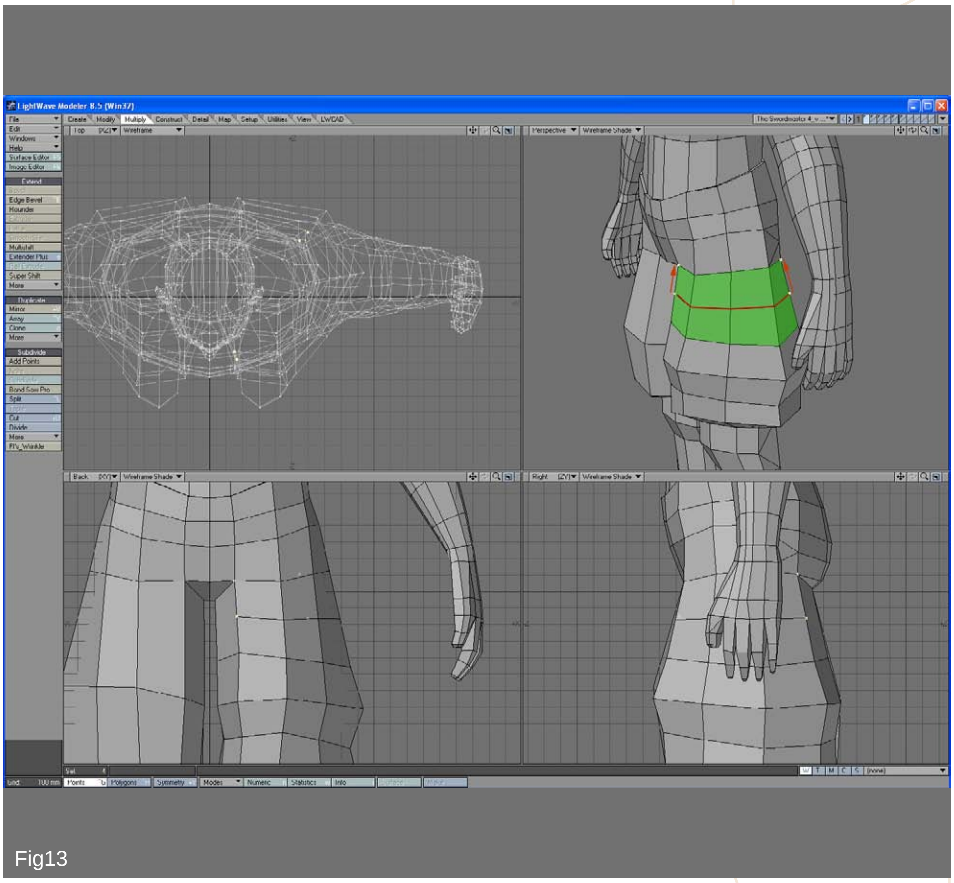


Fig13

14. Make cuts through quads as marked red in the image using the Split tool (select quad, switch to point selection mode, select start and end points of cut and Ctrl+l to split). For the cut marked blue in the image, select two polygons beneath and use the Cut command. Weld the end points as in the previous step. Finally, merge the green marked triangles into a quad.

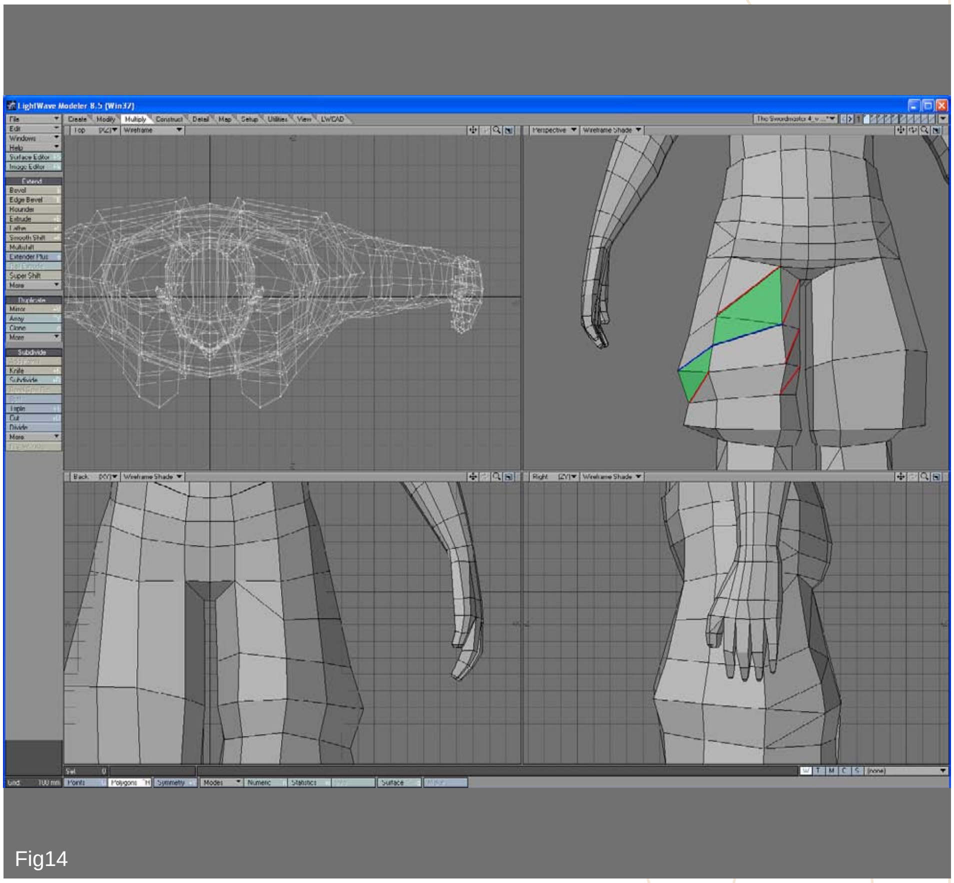
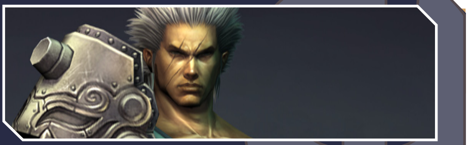


Fig14



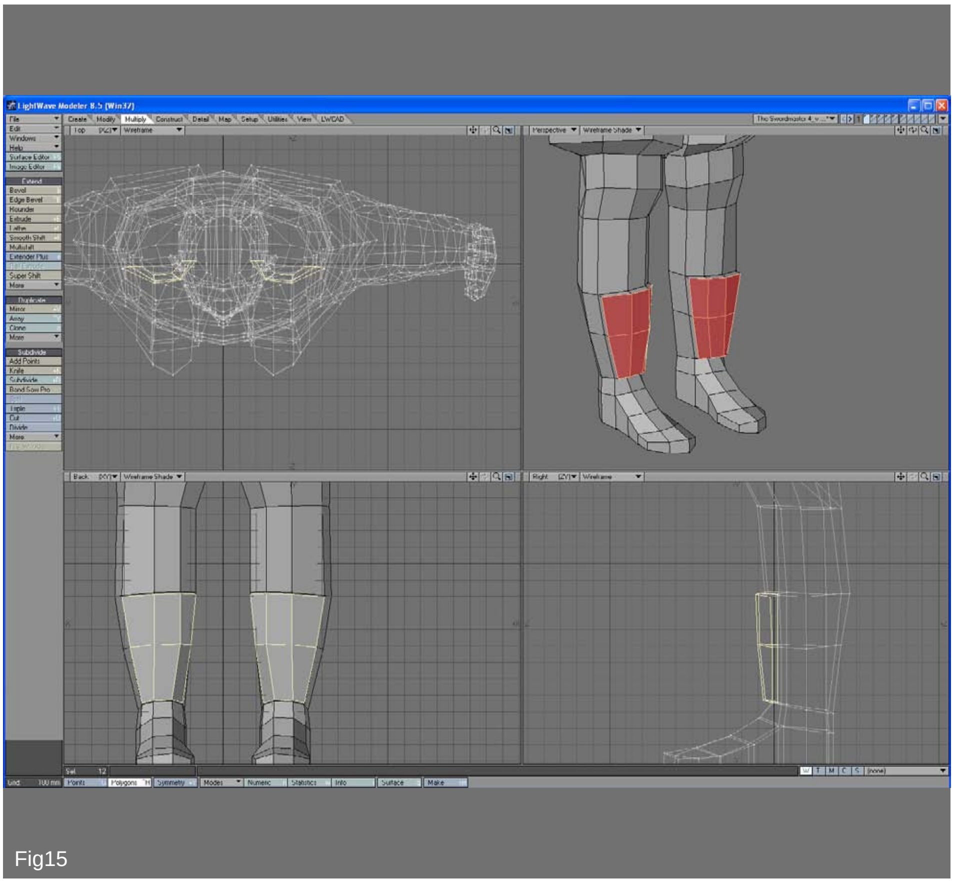


Fig15

15. For the shin protection simply select the polygons marked in the image, hit “e” to extend the polygons once and then move them a bit away from the leg.

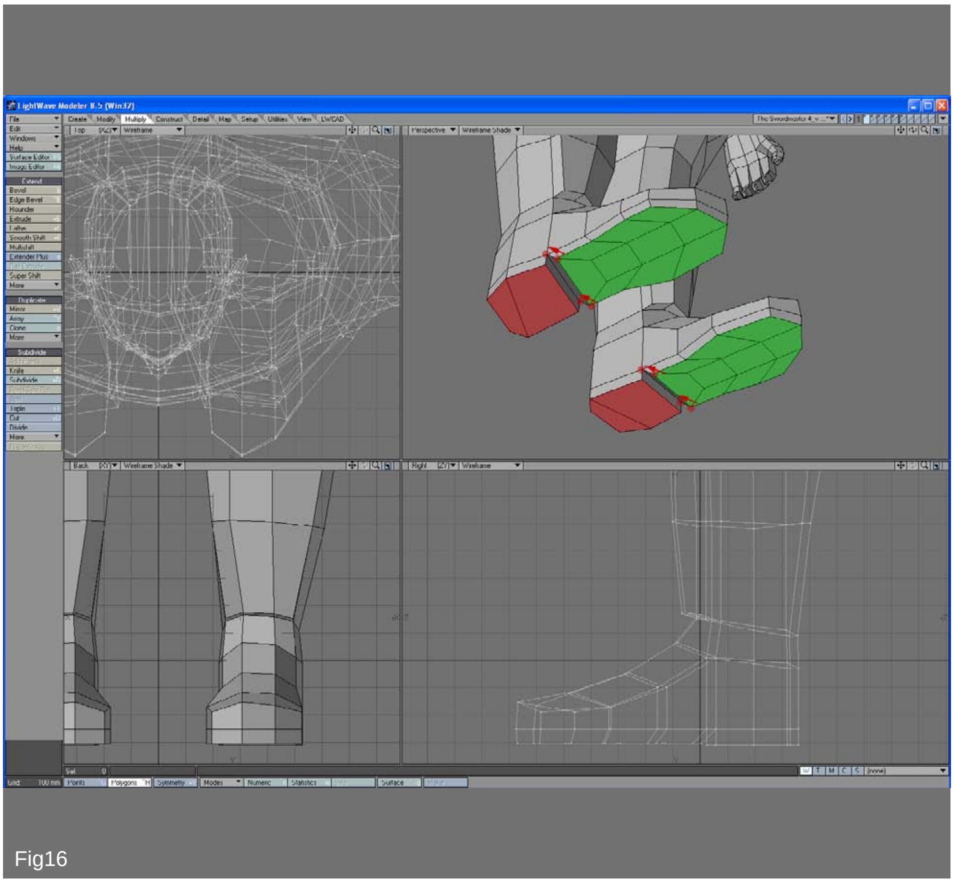


Fig16

16. For the footwear, select the first polygons marked red in the image, hit “e” once to extend and then move them down a bit. Then, select the green marked polyogns and again extend once and move them down. Stretch them down in the right viewport and move them to the front part. Weld the marked points and delete any two point polygons that remain after welding.

17. Select the row of polygons above the shin protection part and copy them into a new layer. Use the Knife tool (Shift+k) to make a cut somewhere in the middle of the object. Use the Stretch tool to rescale the rows of points like in the image.

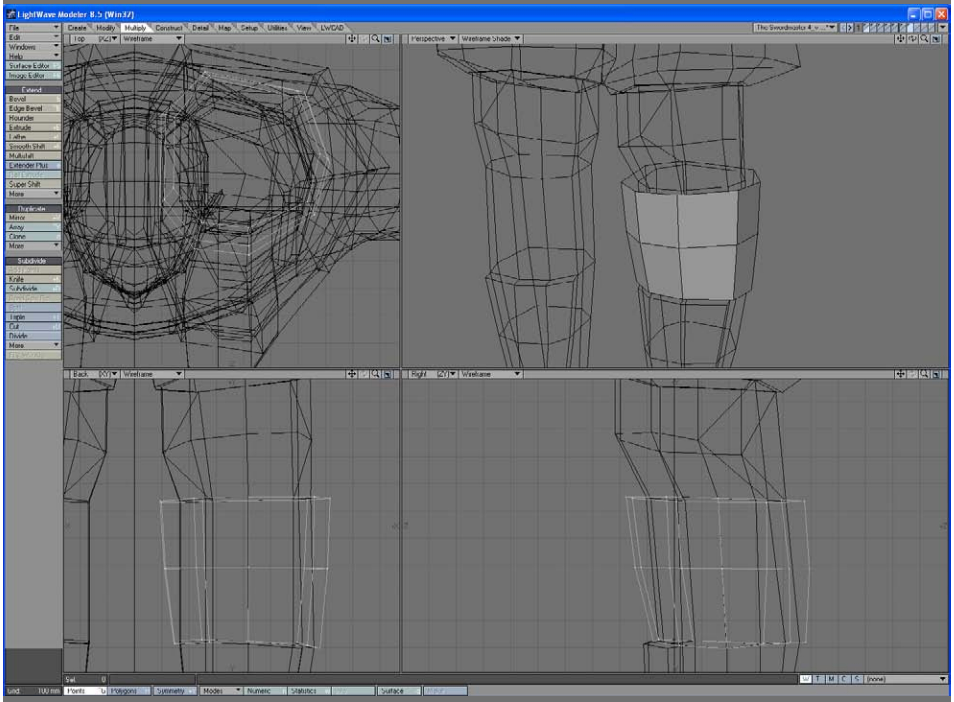


Fig17

18. To make this part solid we'll use a little trickery. Select all the polygons, copy and paste them in the same layer, hit "e" to extend and stretch down for about 90% on both the X and Y axis. Then select the two front top polygons, extend them twice and readjust to make the knee protection.

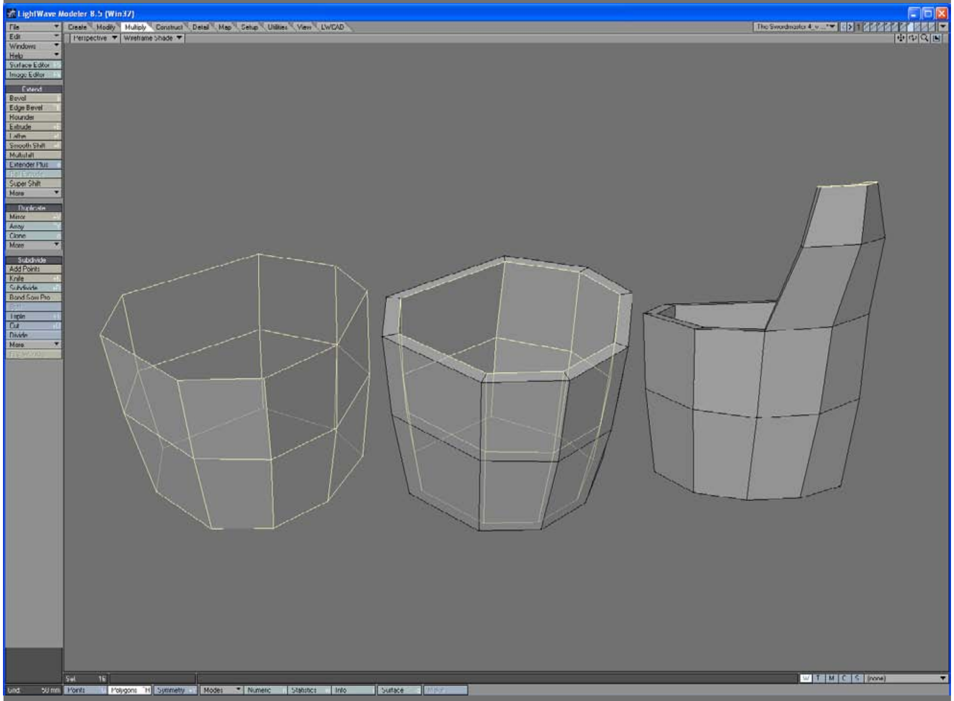
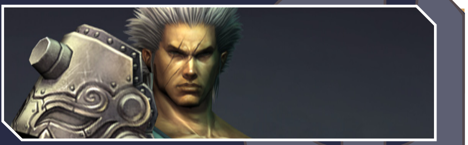


Fig18



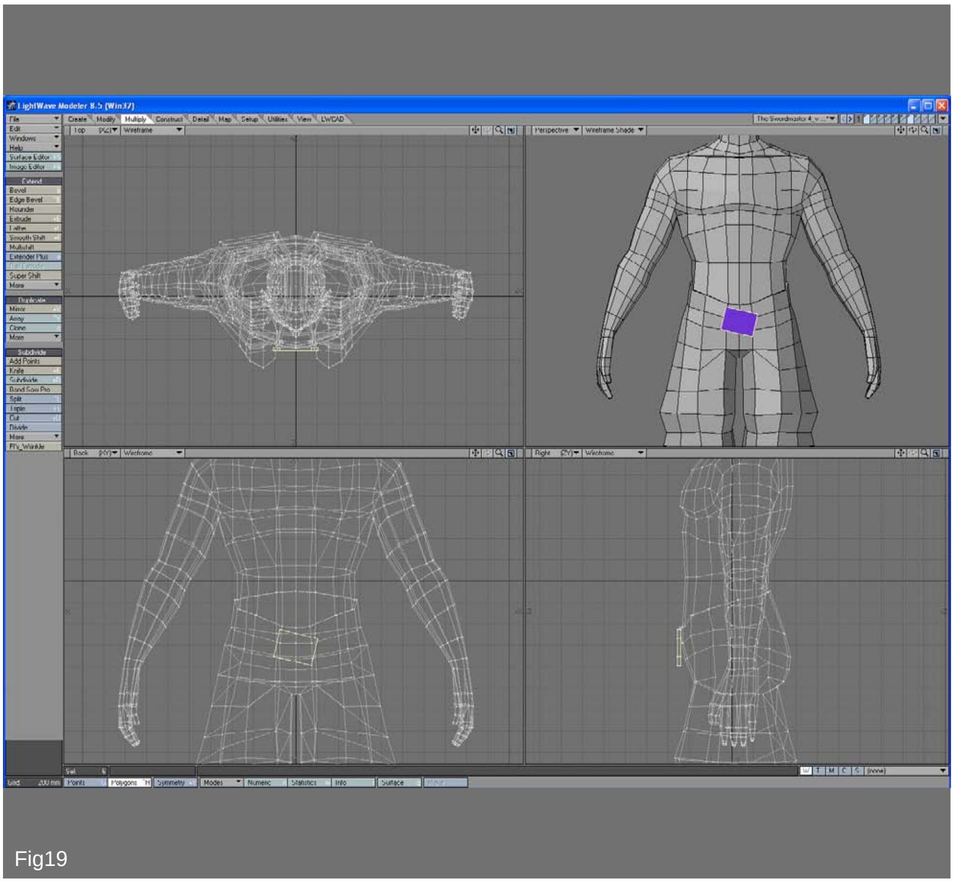


Fig19

19. The last piece of clothing in this tutorial is the belt. Create a simple shallow box and position it like in the image.

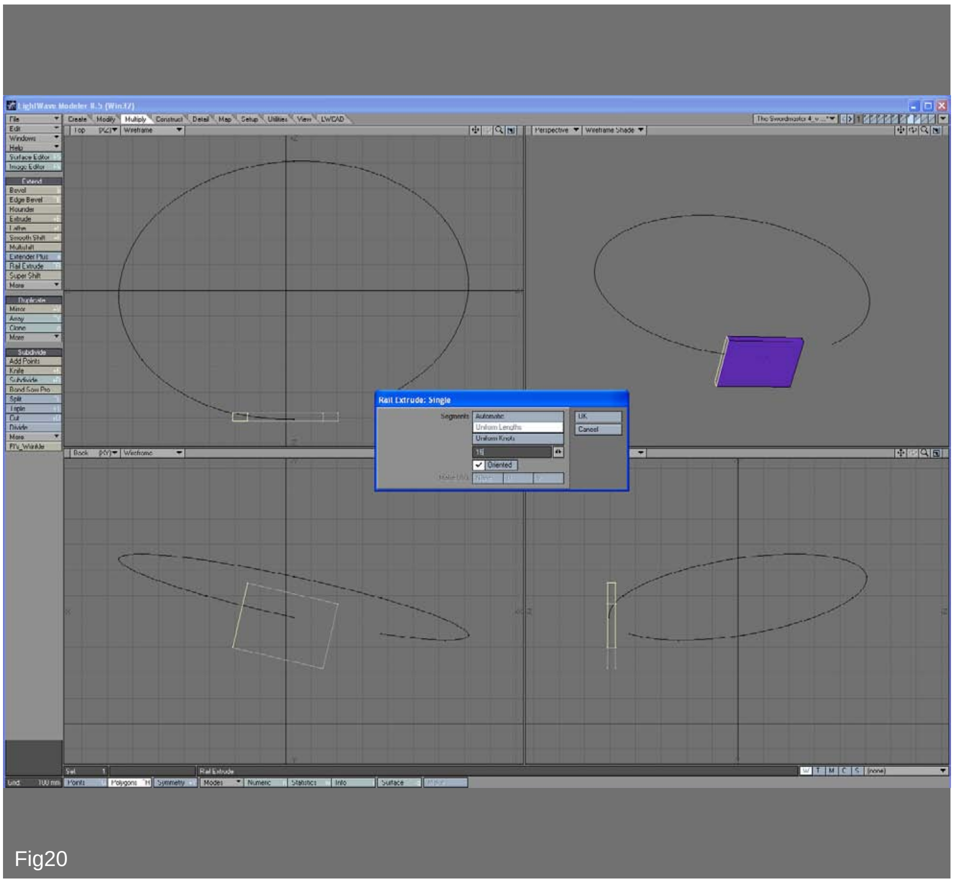


Fig20

20. In the next empty layer create a curve around the waist of the model. One of the easiest ways to do this is to actually create a disc, scale and position it around the waist. Use the Remove polygons command (“k”), select points in a clockwise manner and Ctrl+p to create a curve. Put a box layer as the foreground and a curve layer as the background, select most of the left polygon, flip it and activate the Rail Extrude tool. For segments choose Uniform Lengths, type 15 for the number of segments, check orientation and hit OK.

21. Weld the points marked in the image and delete the left and front sides of the original box as there are polygons that aren't needed anymore.

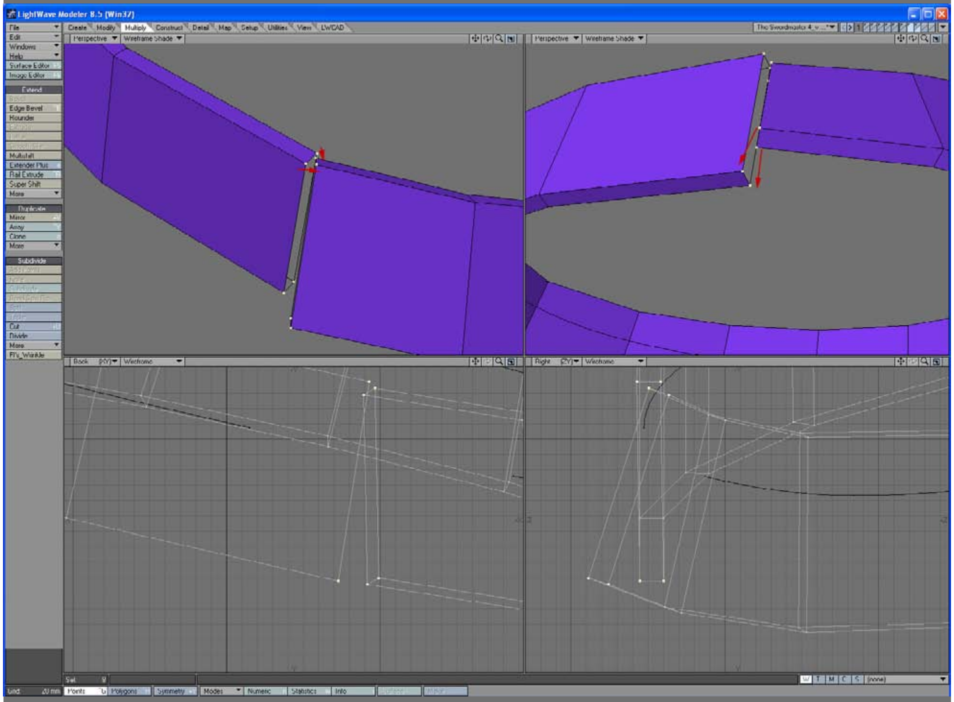


Fig21

22. Adjust the points so they fit nicely into the waist area.

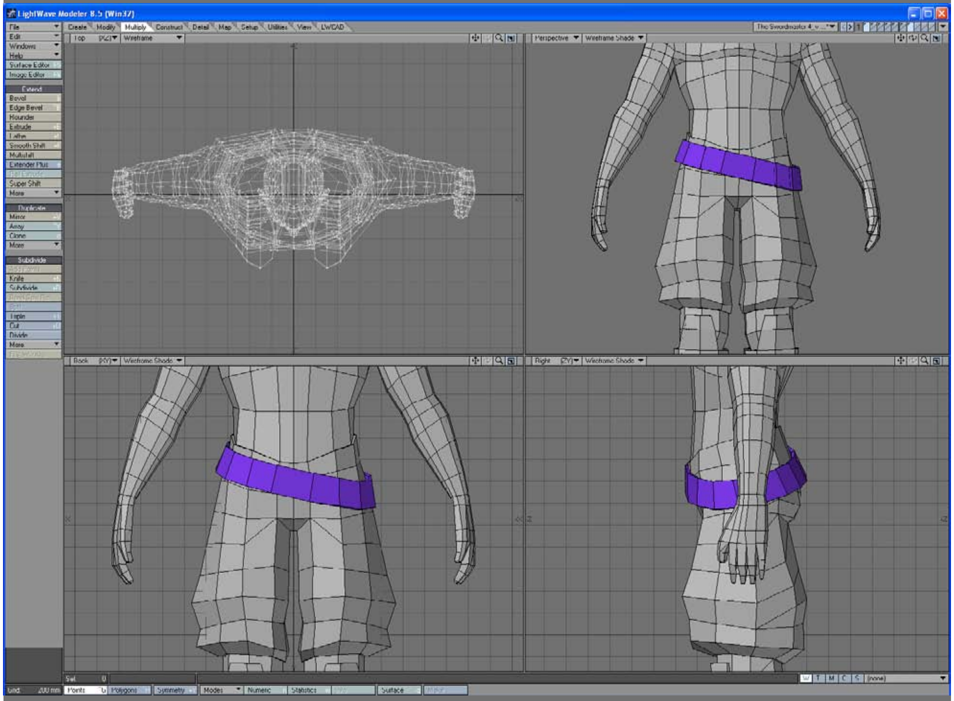
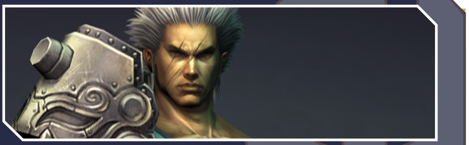


Fig22



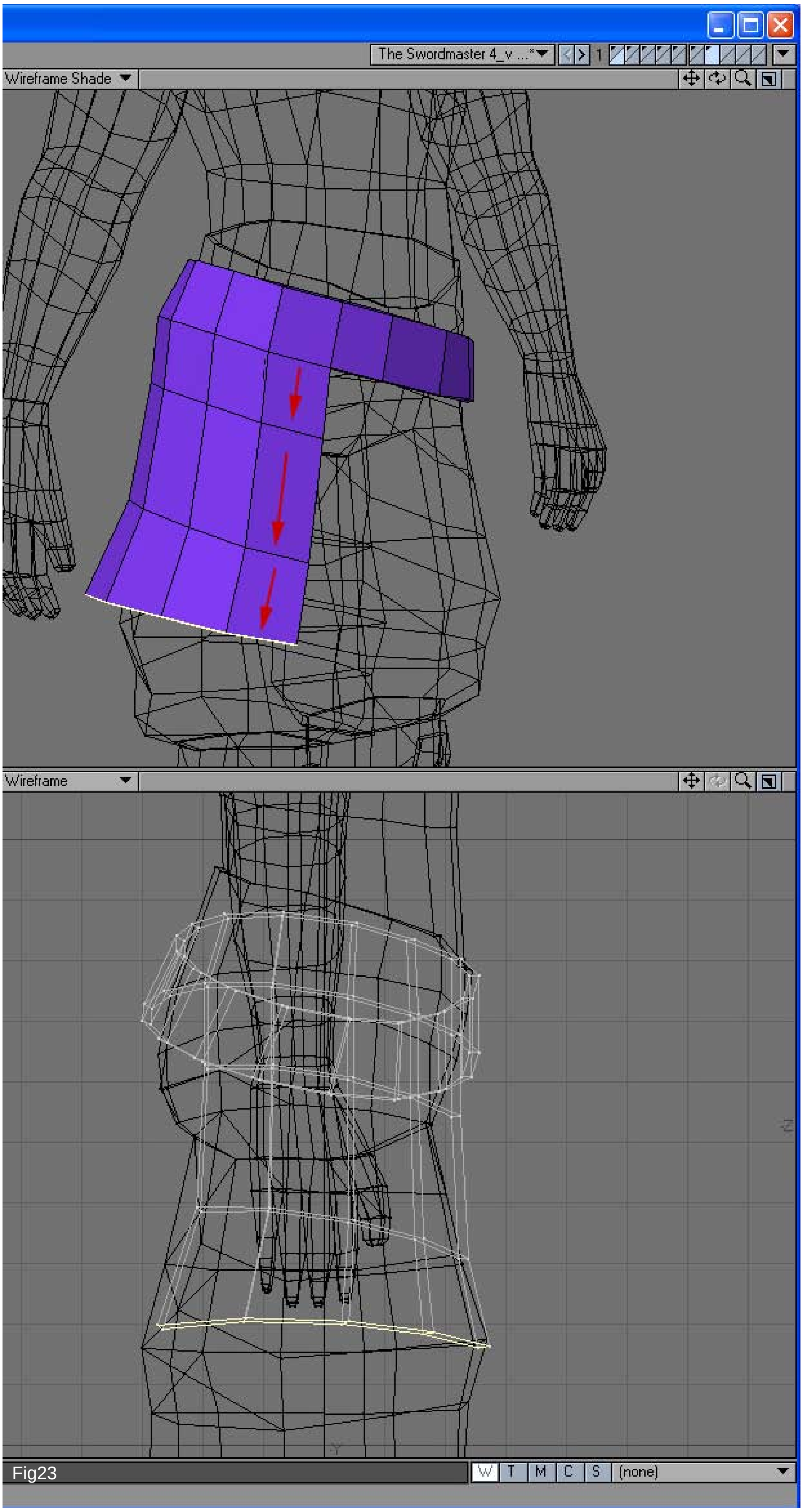
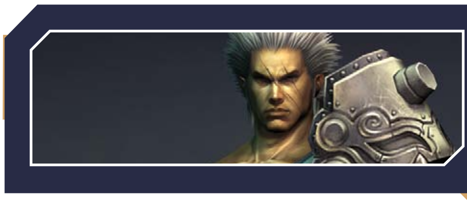
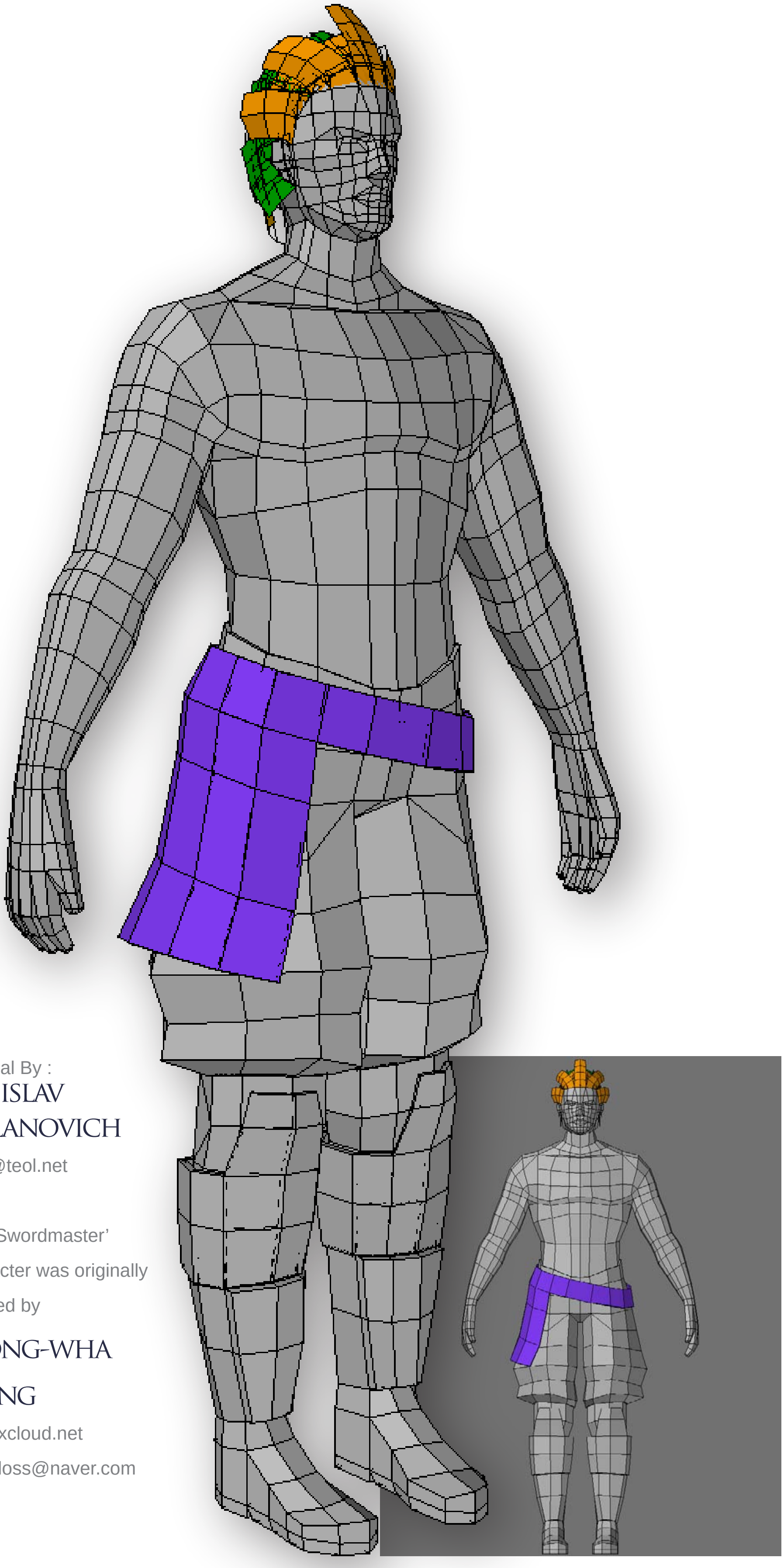
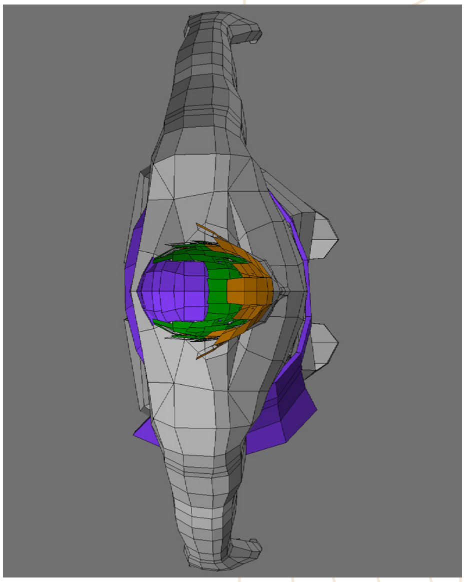


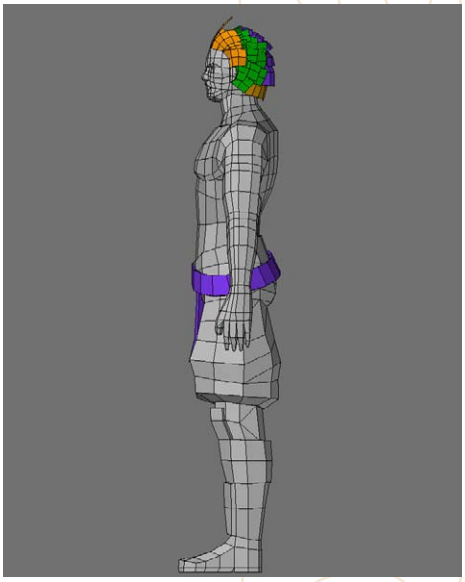
Fig23

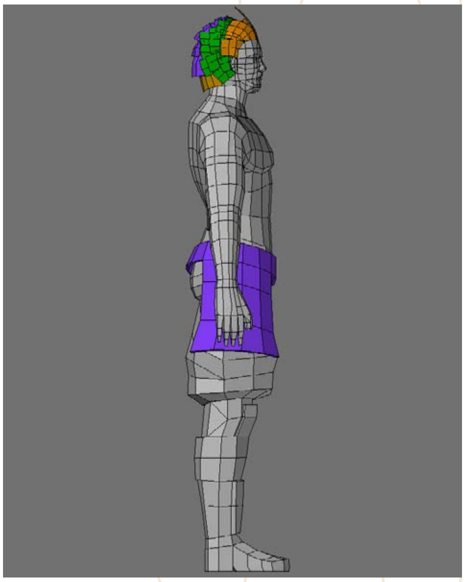
23. The final step is to create the cloth on the model's right side. Select four lower belt polygons on the model's right side and extend them three times making the neccessary adjustments after each extension.











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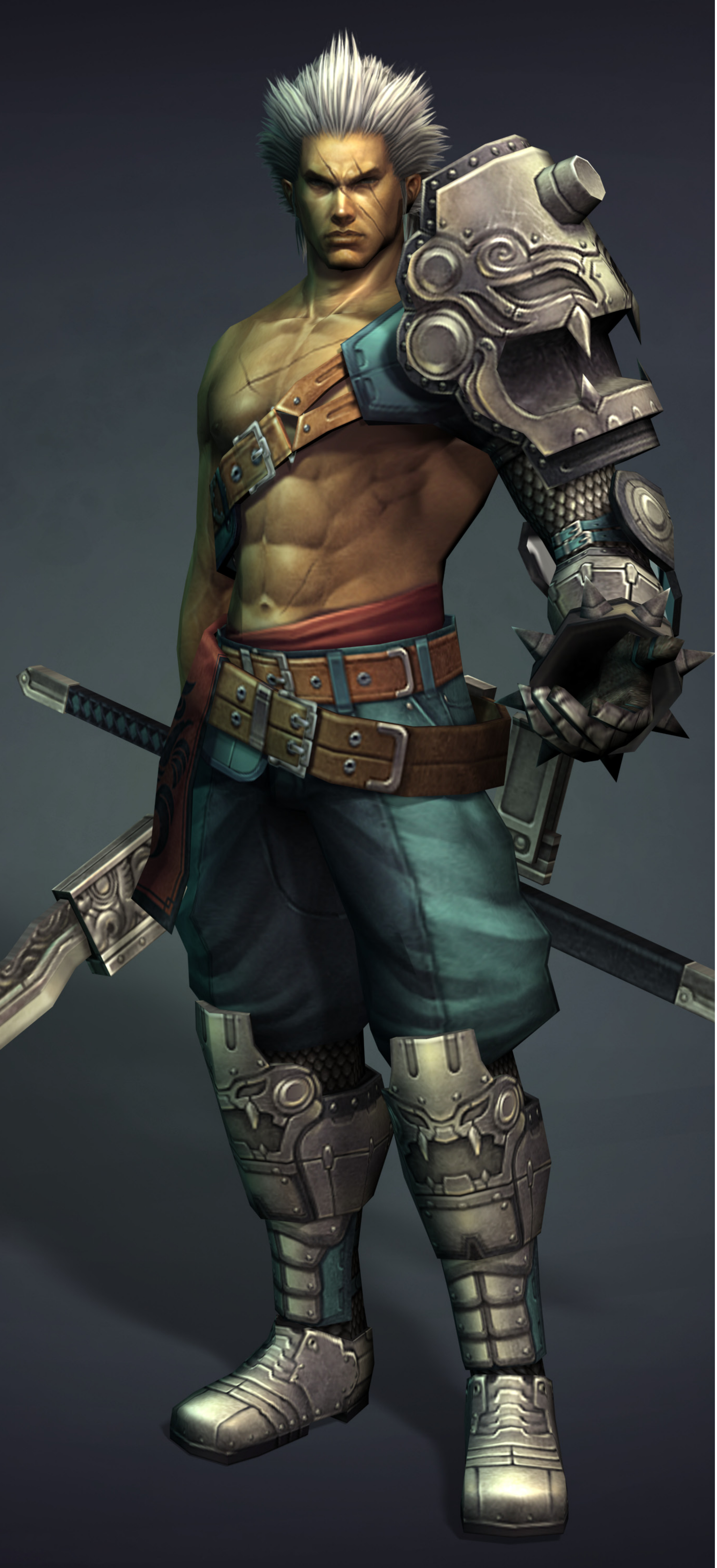

The Swordmaster
Maya

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Enjoy ...

PART FOUR

MODELING THE CLOTHING & HAIR

INTRODUCTION

Hello again and welcome to the fourth part of modelling the swordmaster character based upon a model by Seong-Wha Jeong. In this part we're going to add hair and clothing to our model. From this part forward we're going to use multiple techniques and tools and I strongly recommend you to "save as" the file in different stages of modelling. This way you may return to a previous state of the model and reshape the body from where you left at that stage.

1. Open the last scene and select the 8 red faces shown in Fig01. We're going to use now Edit Polygons > Duplicate Face. This tool creates new disconnected faces from the selected faces. I've merged together both parts of the body for this operation to be sure that no that funny things are going to happen. Rotate the surface a little bit and snap the yellow verts from the bottom row of the new created object to those find on the face and delete history from both objects. We are trying to get some nice surfaces on which we'll apply later the hair texture.

2. Duplicate the red surface and arrange it as in Fig02. Snap the bottom rows of each duplicated surface to the head and rearrange the verts a little bit. We must take care to have a good distribution of the faces since we're going to apply hair texture later over those pieces of geometry and we must have an uniform distribution of the texture over the faces.

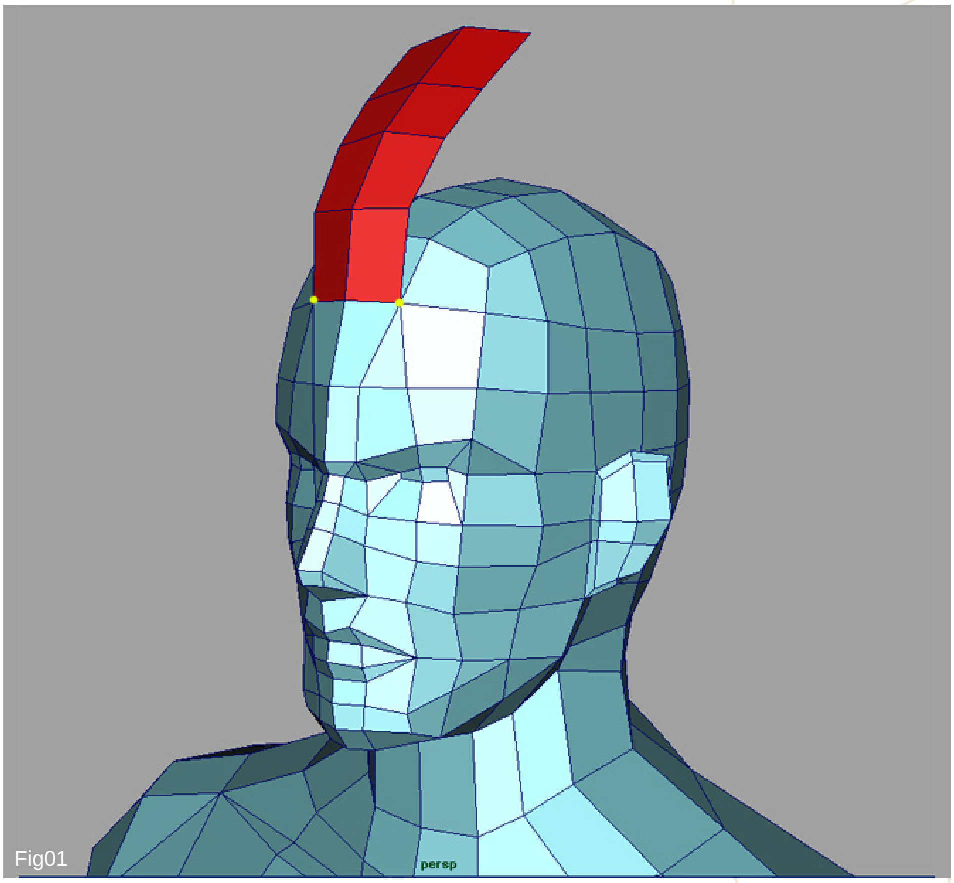


Fig01

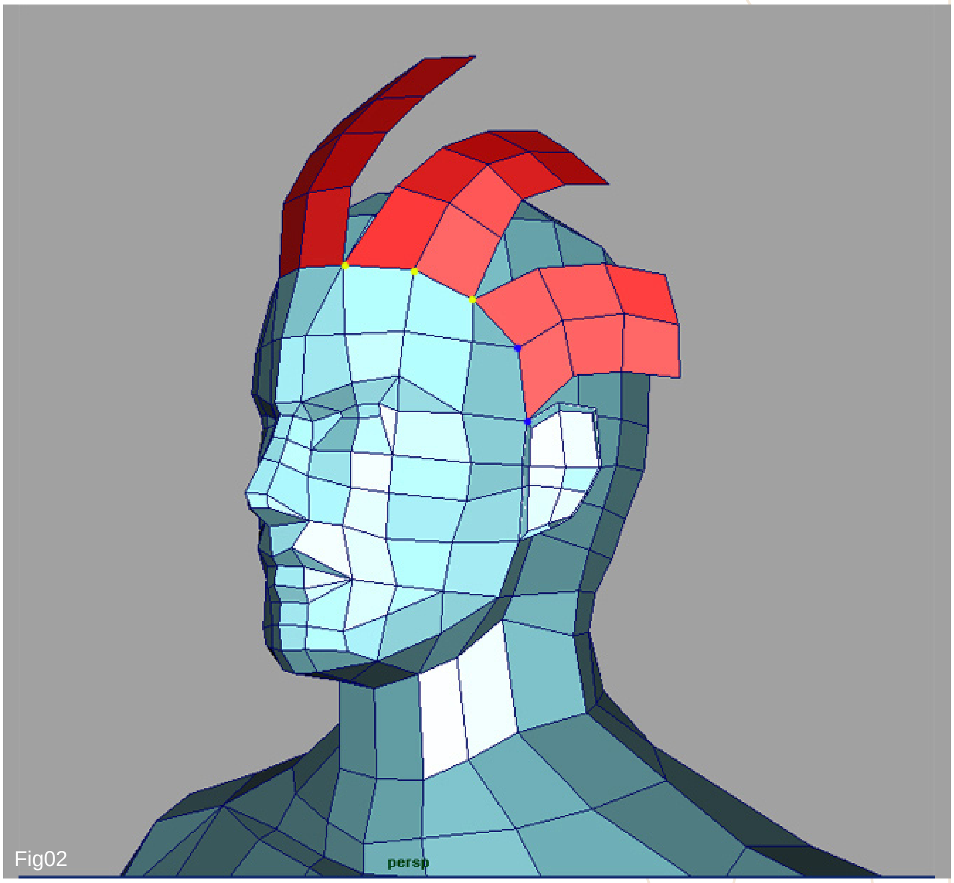
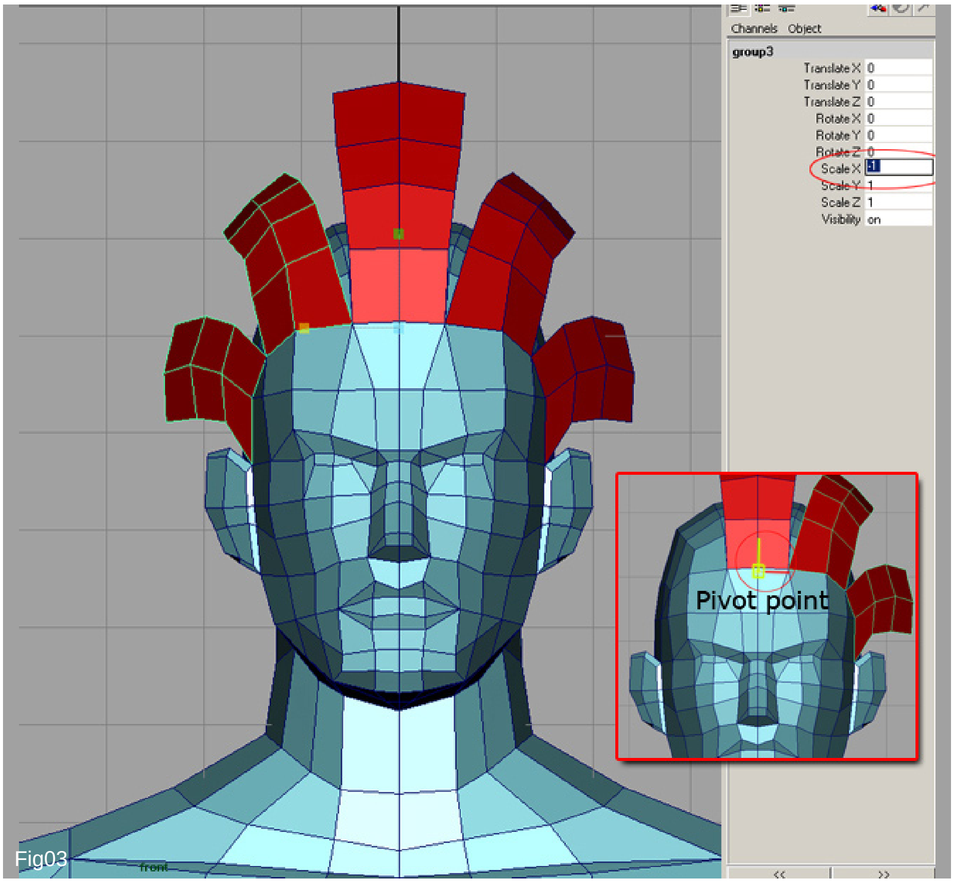


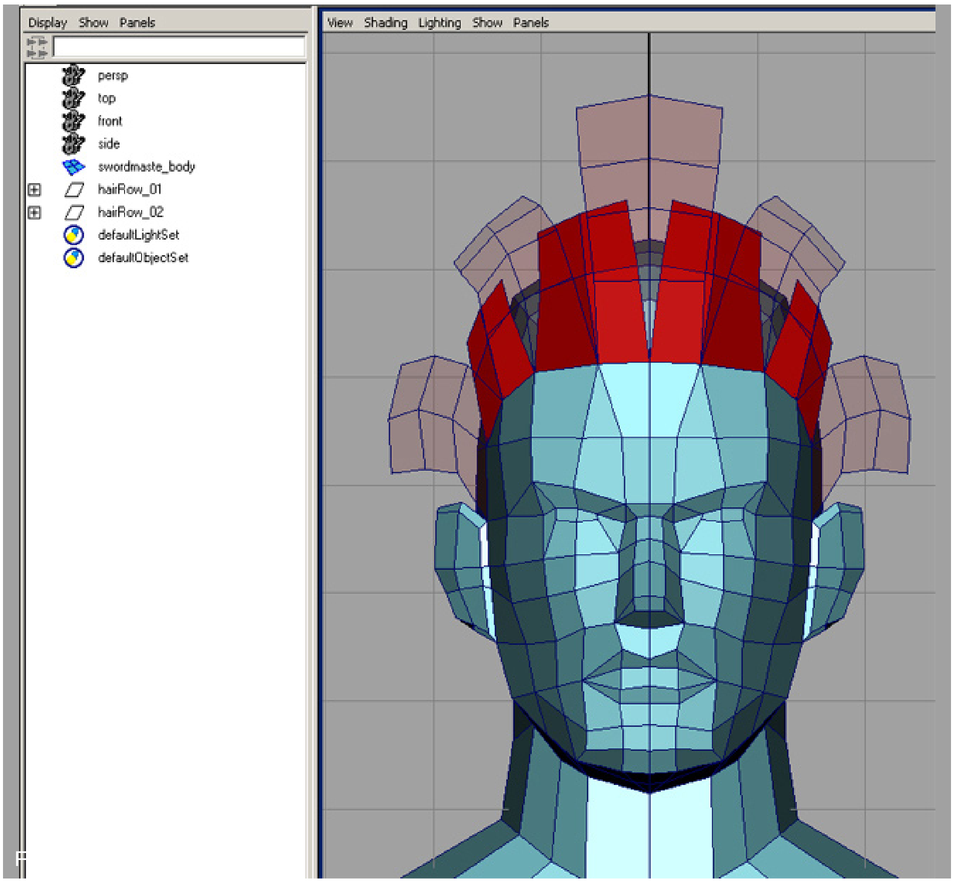
Fig02



group3
Translate X 0
Translate Y 0
Translate Z 0
Rotate X 0
Rotate Y 0
Rotate Z 0
Scale X -1
Scale Y 1
Scale Z 1
Visibility on

Fig03

3. Now, we're done with the right front side of the head. Since we didn't worked with instances, on the left side of the head we don't have hair geometry. I will duplicate both pieces of hair geometry from the right. I've made a group (ctrl+g) with both of them and after that I have moved the pivot point of the group in the centre of the body. Remember you can move the pivot point by pushing the "Insert" key. Now duplicate the group and scale it by "-1" on "X" direction. That's a simple way of duplicating geometry on the other side (Fig03).

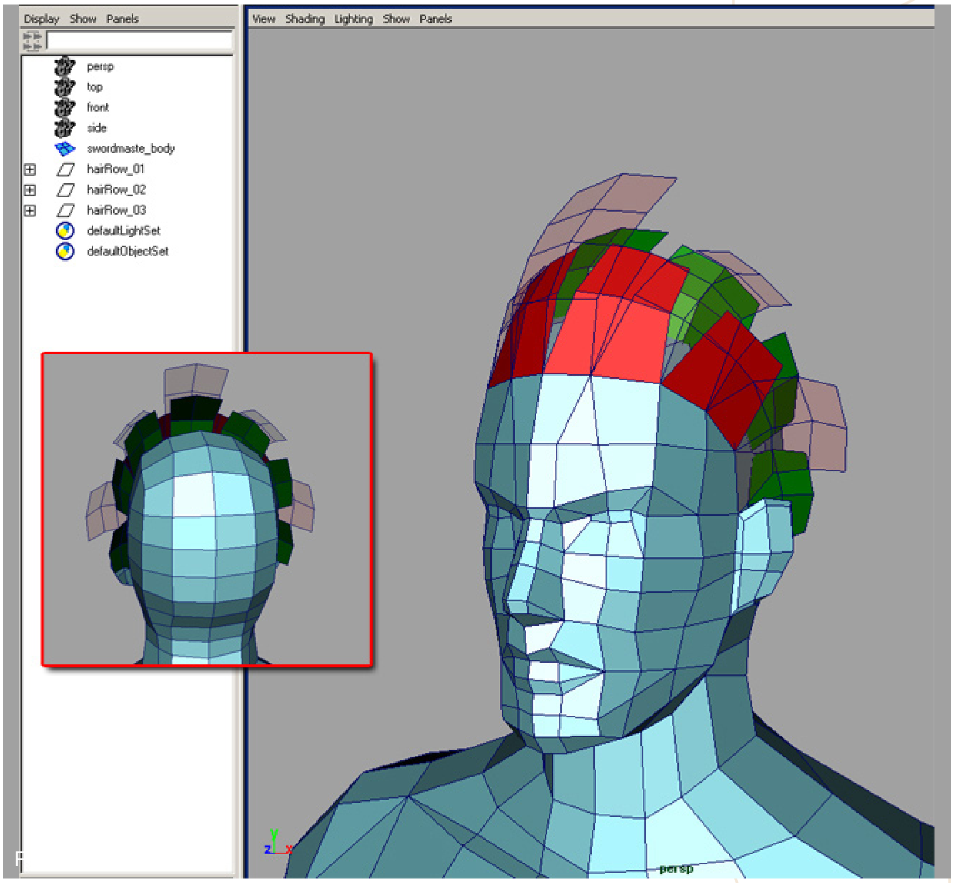


persp
top
front
side
swordmaste_body
hairRow_01
hairRow_02
defaultLightSet
defaultObjectSet

F

4. With the front row of the hair finally done, create a group out of all 5 pieces of geometry and rename it as you like. I used "hairRow_01" in order to know on which part I'll bee working later. I've duplicated it and I snapped bottom row of each piece of geometry to the same front line, as I did for the previous set of hair. Delete 2 rows of faces from each surface and rearrange the verts. I have deleted all the transform nodes and all the empty geometry sets from the outline (Fig04). Some transform node will create problems if you delete them while they're still connected to the geometry. If a transform note is connected to the geometry when node is selected the wire colour of the connected geometry will turn to pink. You can get rid of them by selecting that piece of geometry and use "Edit > Delete All By Type > History" or using "Hypergraph".

5. Create the third set of polys by duplicating last group. Move it behind but this time it's not need to snap it to the scalp. Add 4 more pieces of geometry and rearrange the verts (Fig05).



6. Once we've finished making first rows of hair from the front part we're going to build the back section. I've made it by duplicating polygons from the head. Snap the upper row of verts to the scalp as in Fig06 and rearrange the verts. To complete the whole part I've made a duplicate of the half mesh and I scaled it by "-1" to complete the back part of the hair. To save some texture space I can paint only half of geometry and apply it to the other half by transferring both UV's and texture. We're going to discuss this later on texturing parts.

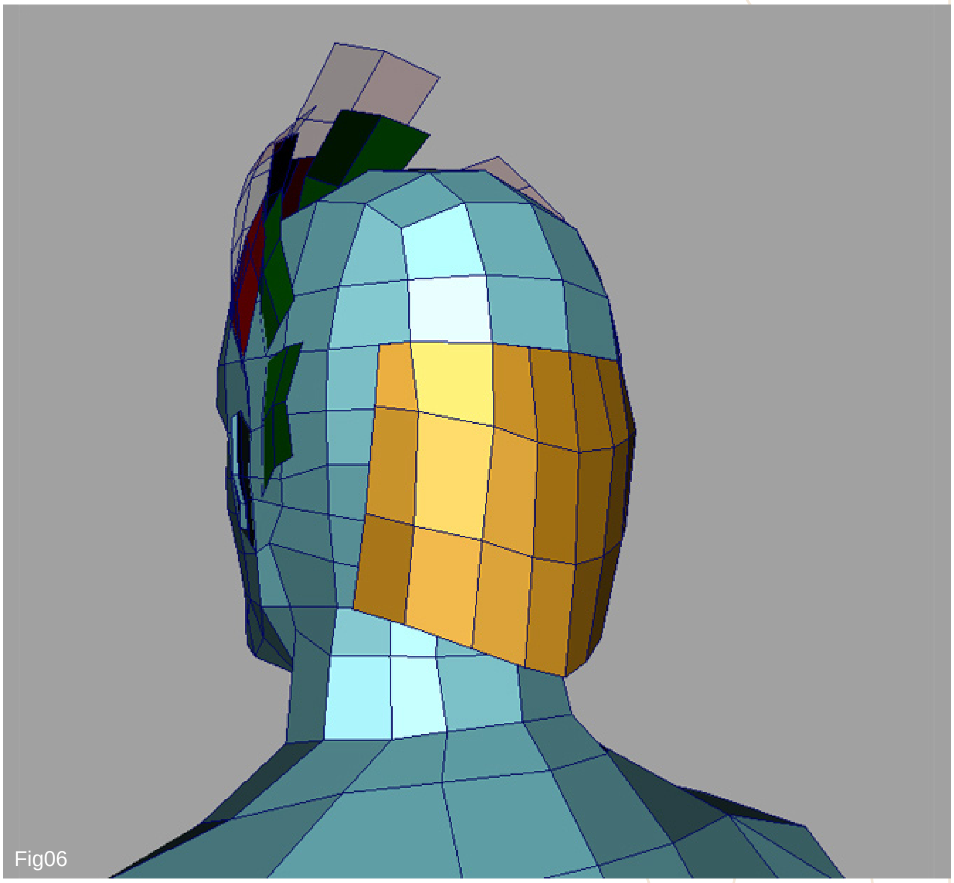
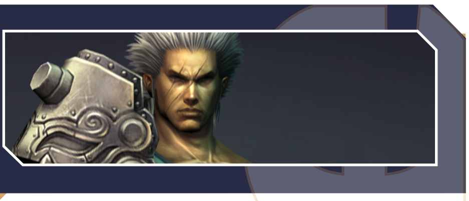


Fig06



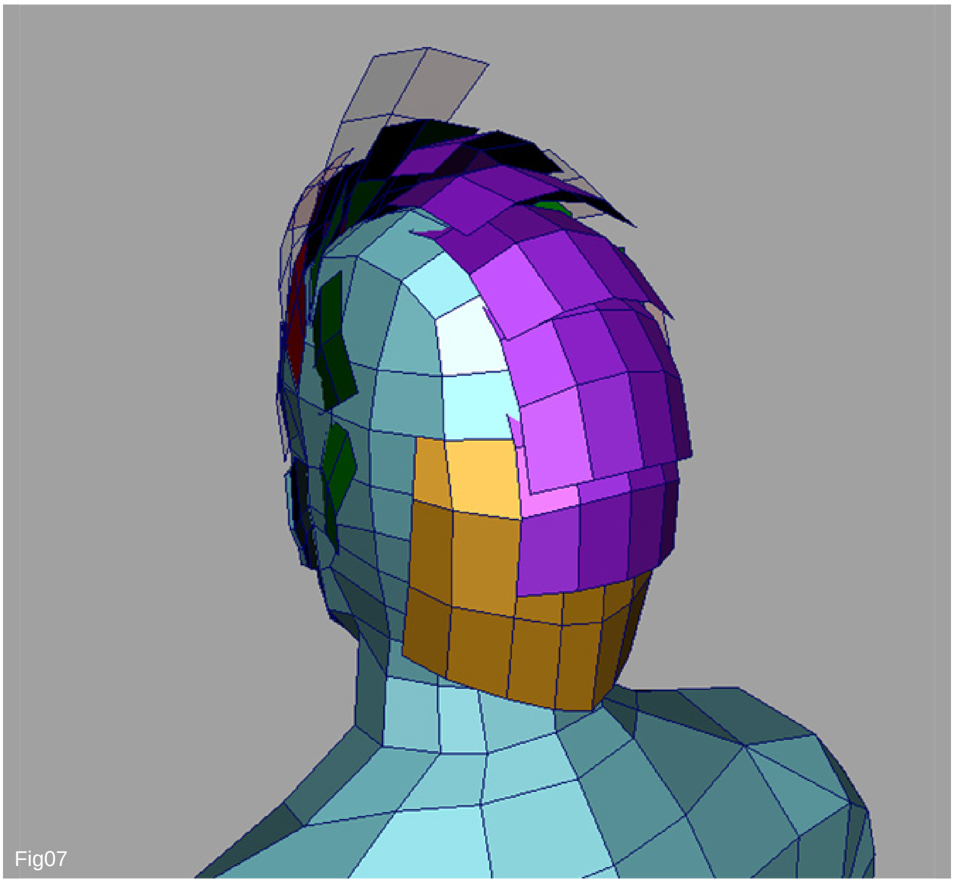


Fig07

7. For central part of the scalp I have duplicated 3 rows with 4 polys each from the central part of the head. I wasn't concerned about snapping instead I took care to respect the shape of the head. The central part of the hair is made by 5 pieces of geometry as shown in Fig07.

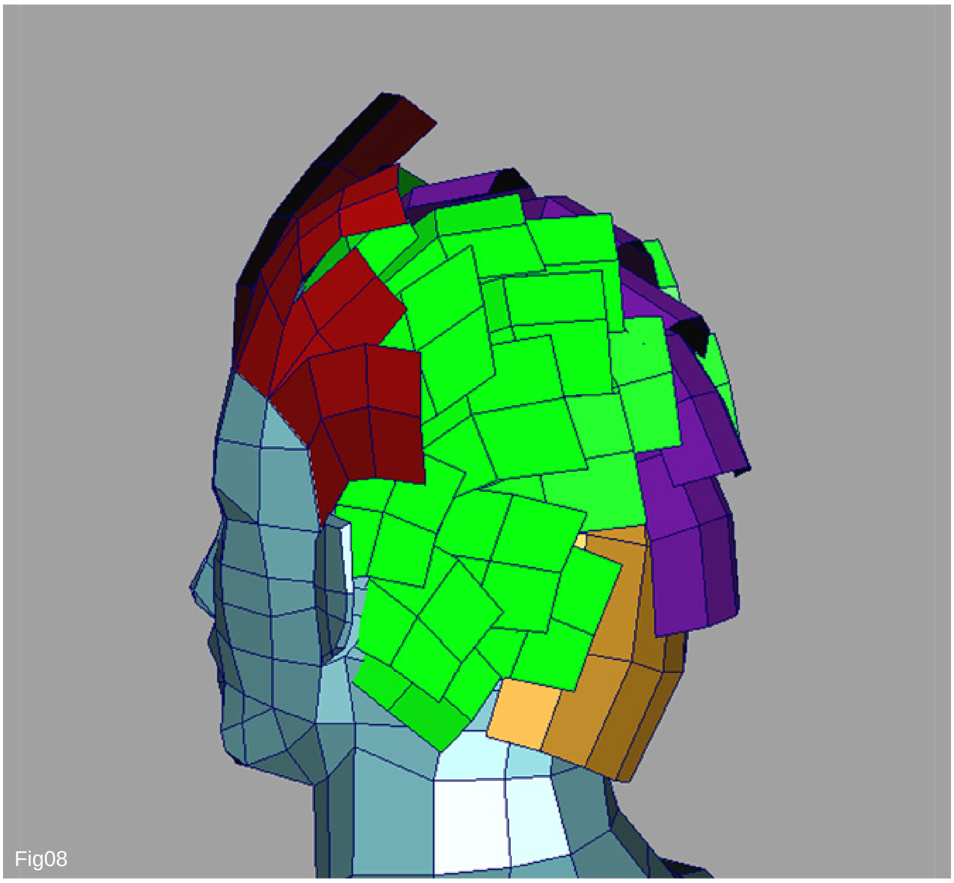


Fig08

8. With the front, back and central parts of the hair complete I've added few more groups of planes to fill the scalp. If we're going to need more pieces we'll added them later. Now just take care to fill the whole scalp with enough pieces of geometry (Fig08).

9. When half of the scalp is done duplicate it to the other side of the head and that's all with the scalp (Fig09).

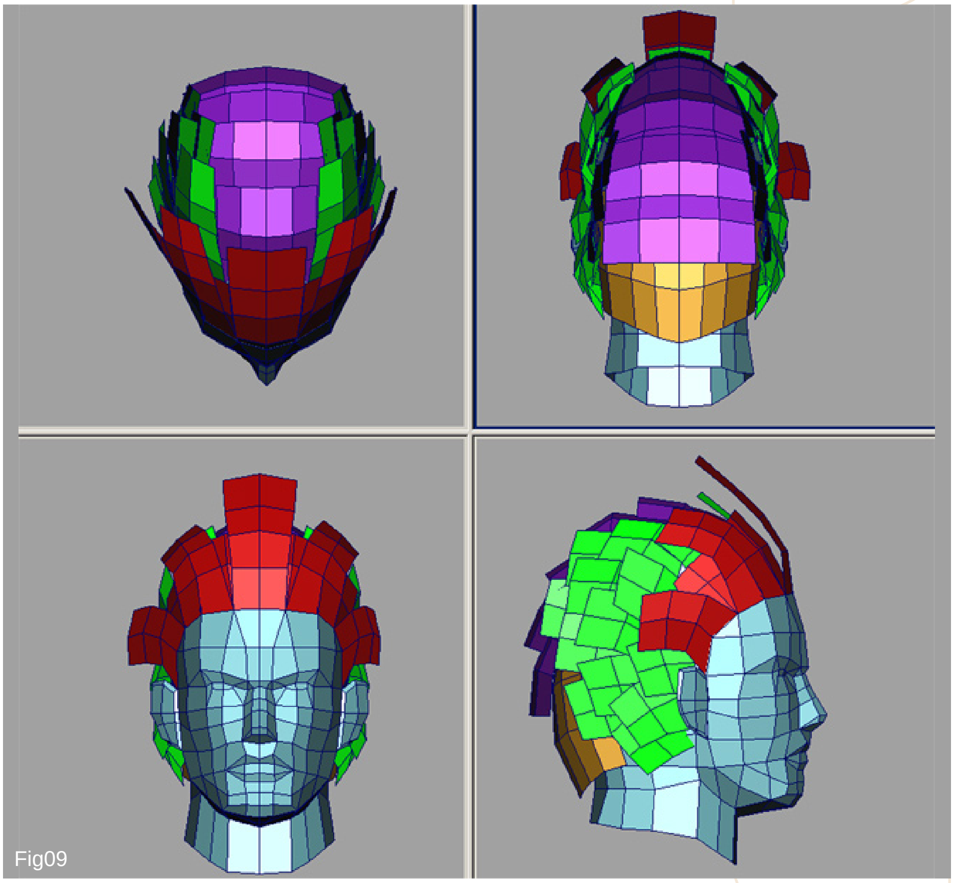


Fig09

10. Now we can pass to clothing. First trousers. Check if you have active "Keep Faces Together" option then select the faces inside the red border and extrude them out a little bit. (Fig10).

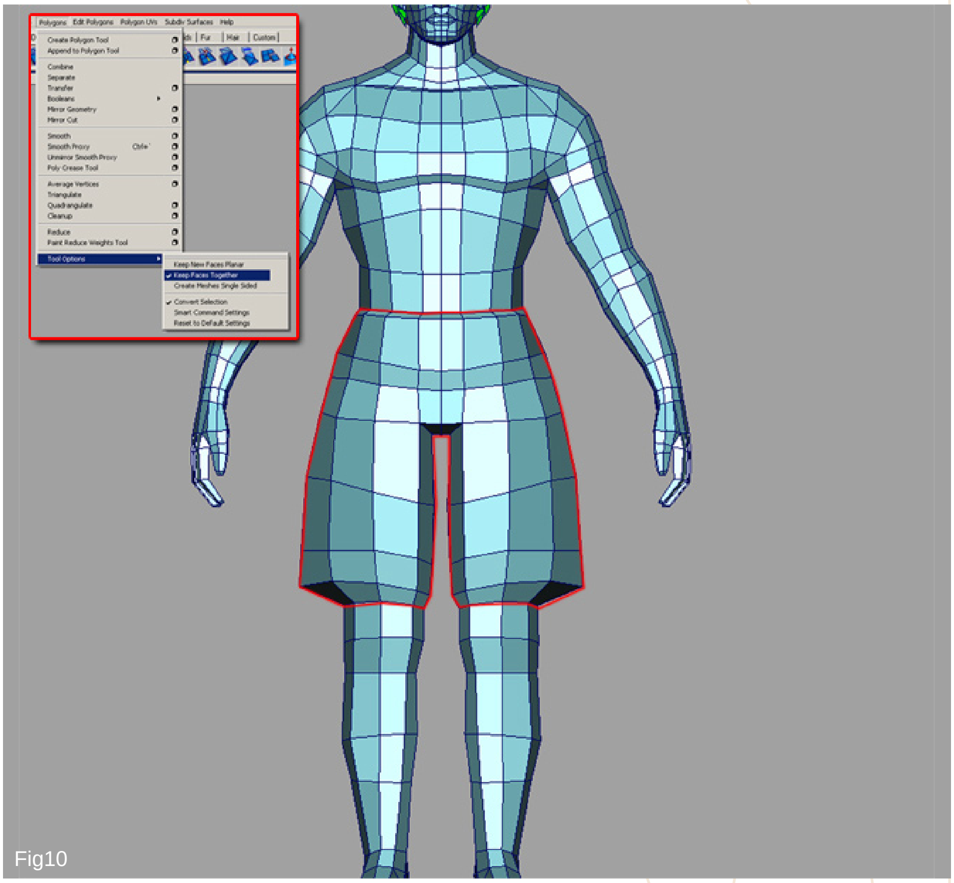


Fig10

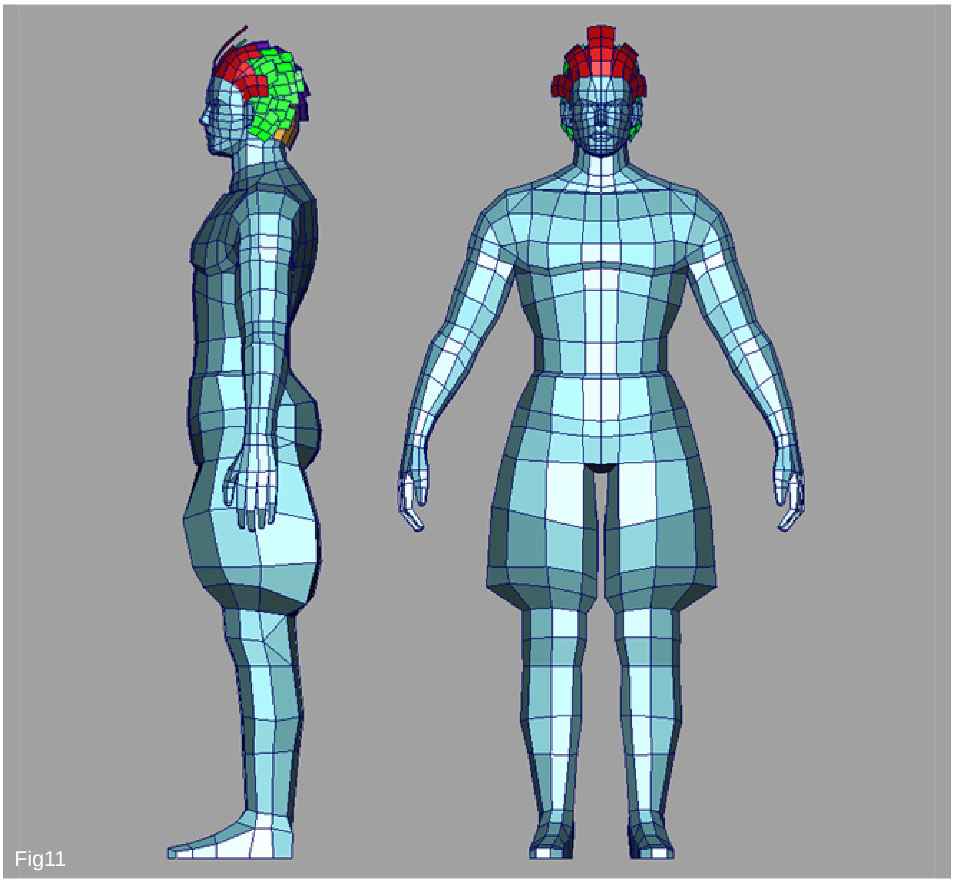


Fig11

11.Tweak the pants moving verts until you get the desired shape. (Fig11).

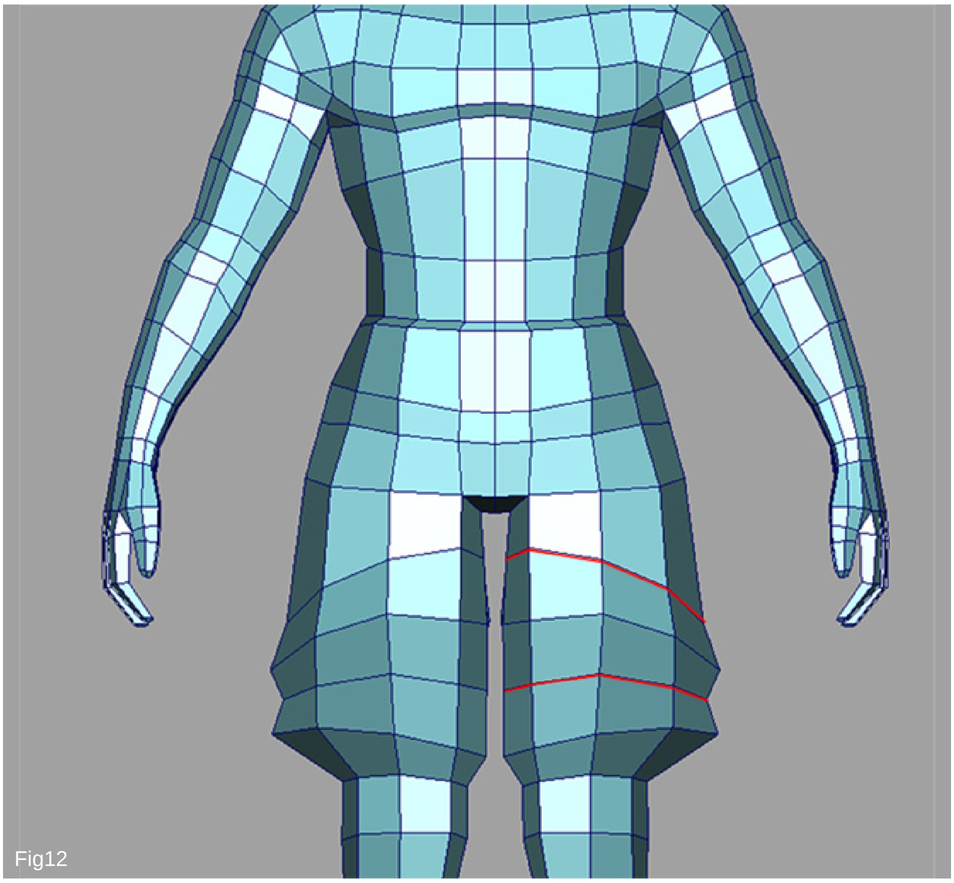


Fig12

12. I have deleted one ring of edges and I've made two new rings of edges as shown in Fig12.

13. Add one more cut from the front to the back as shown in Fig13.

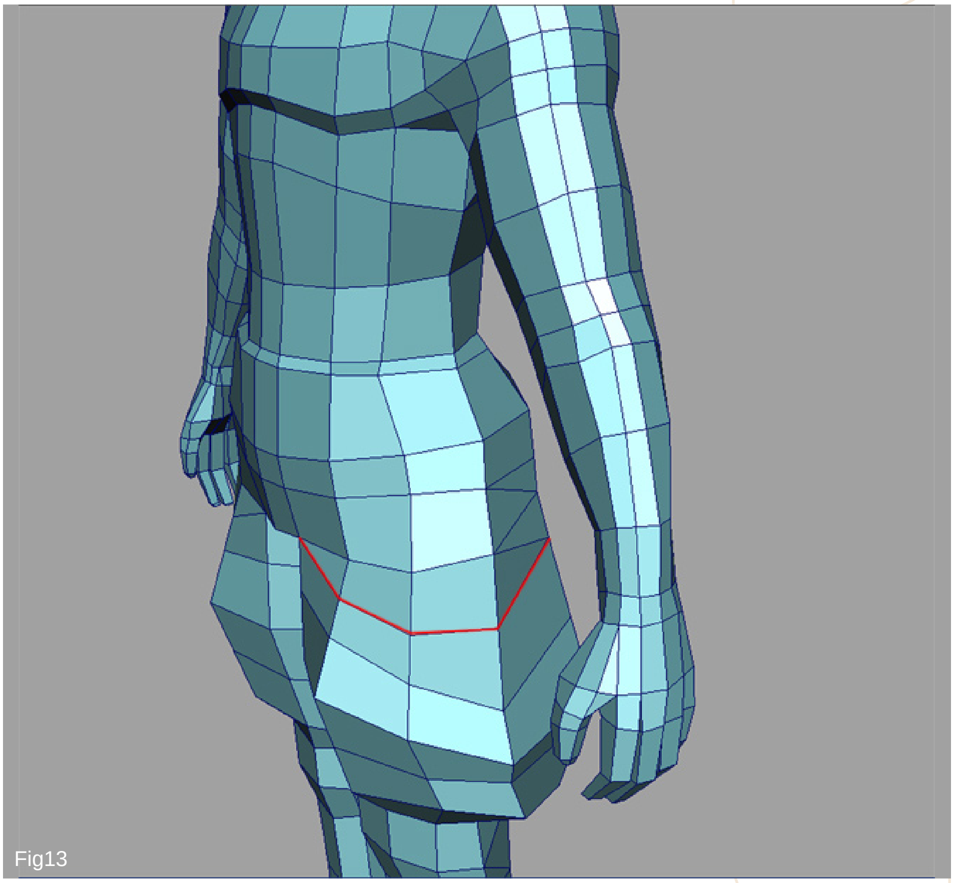


Fig13

14. Now I'm going to rearrange some edges to get the details I want. I have added few edges - the red ones - and I have deleted few of them - in yellow (Fig14).

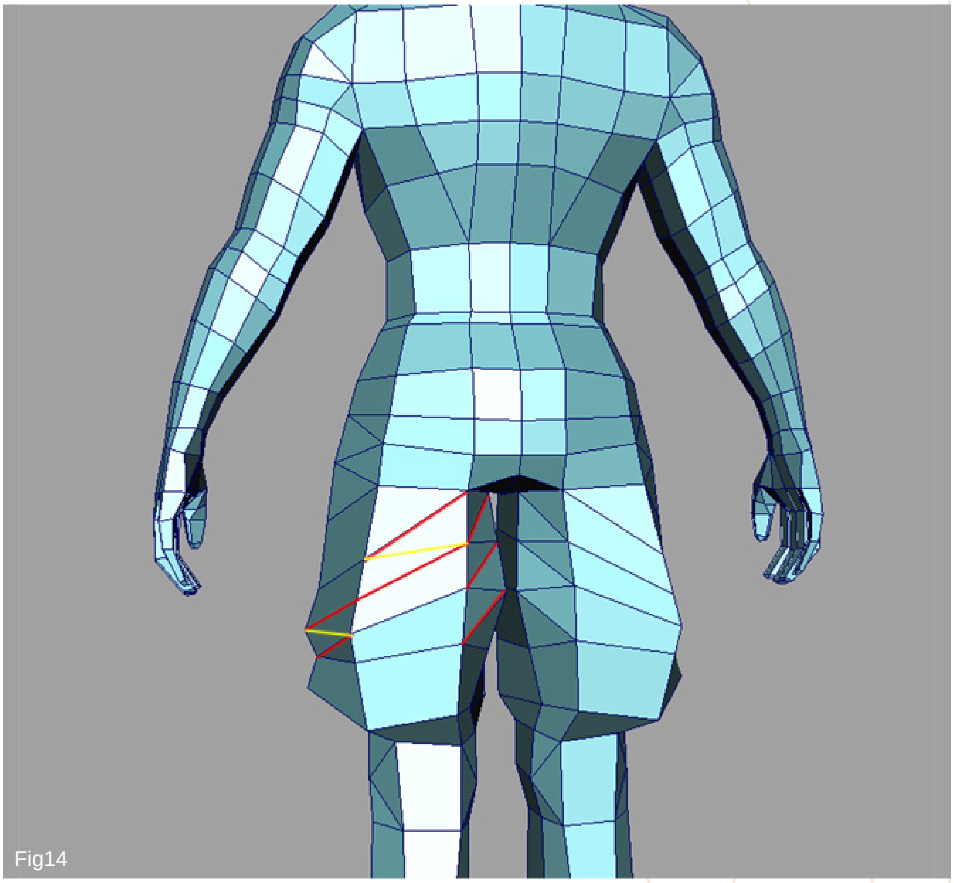


Fig14

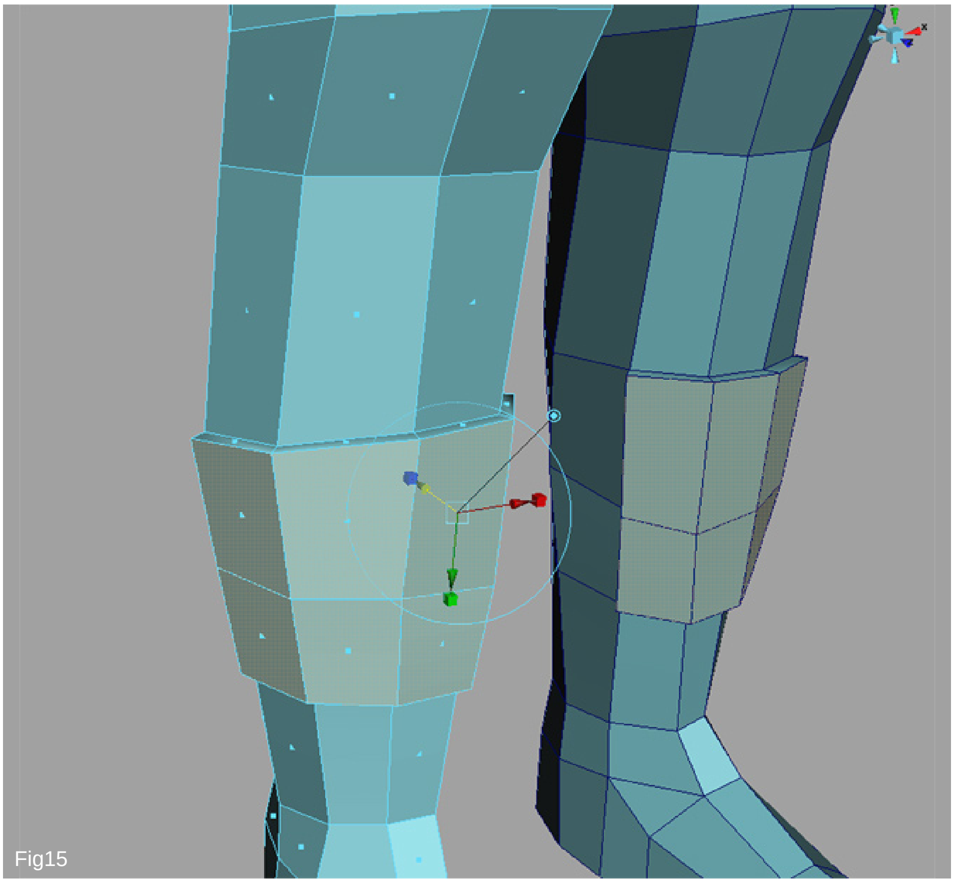


Fig15

15. Next step is to create the shin guards. Select the faces as shown in Fig15 and extrude them out a little bit, keeping by the normal option on. That's it.

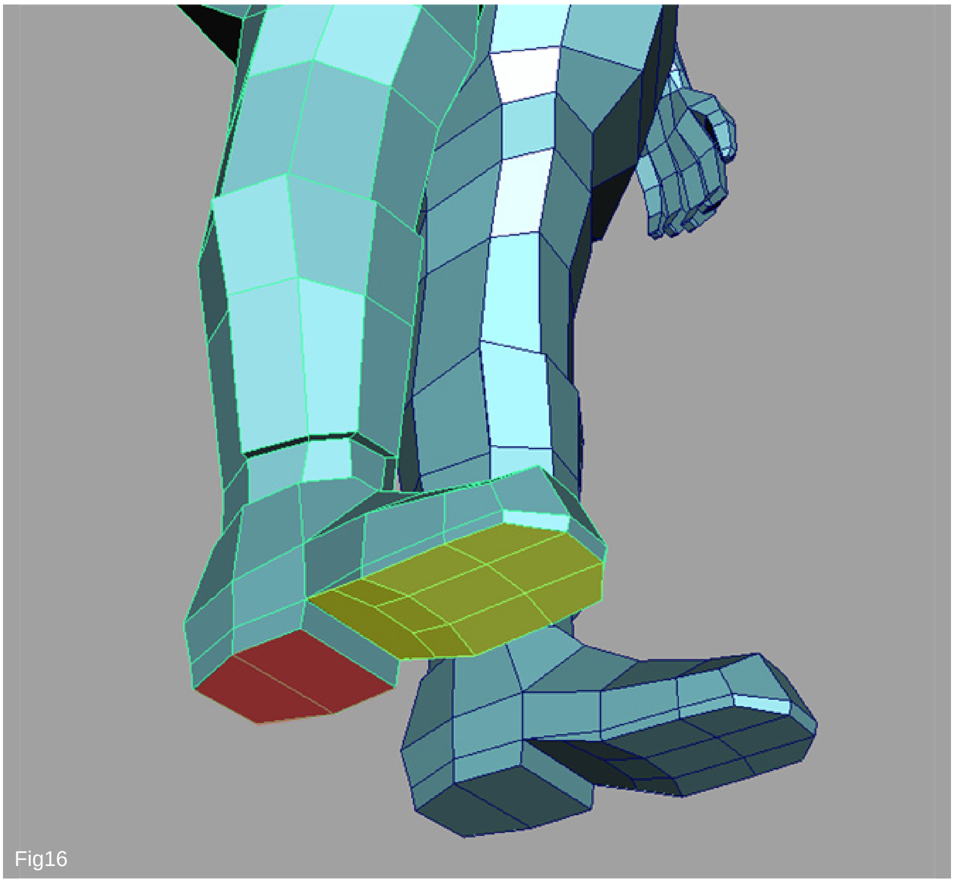


Fig16

16. Next step: the footwear. As we did for the trousers select the faces and extrude them out a little bit then tweak the verts to get a nice shape for the footwear. To make the heel and sole select the two faces - shown in red in Fig16 - for the heel and extrude them downward. For the sole extrude the remaining three faces downward (yellow faces in Fig16). Now you should have a flat sole. To get rid of the flatness of the sole delete the last edge in front of the heel and delete the verts to. Rearrange the verts until you have a nice clean shape for the footwear (Fig16) It's normal to spend some time adjusting and re-adjusting verts all the time during the modelling process. I do this often to improve the model until I'm completely pleased with what I have.

17. Once we're done with the footwear let's make another step forward to the kneepads. Select the two rows of faces show in red in Fig17. I'm extracting them because I need to model them separately. You can choose whichever method you'd like. For example I have made a duplicate of the right half of the body and I have deleted all the faces except those two.

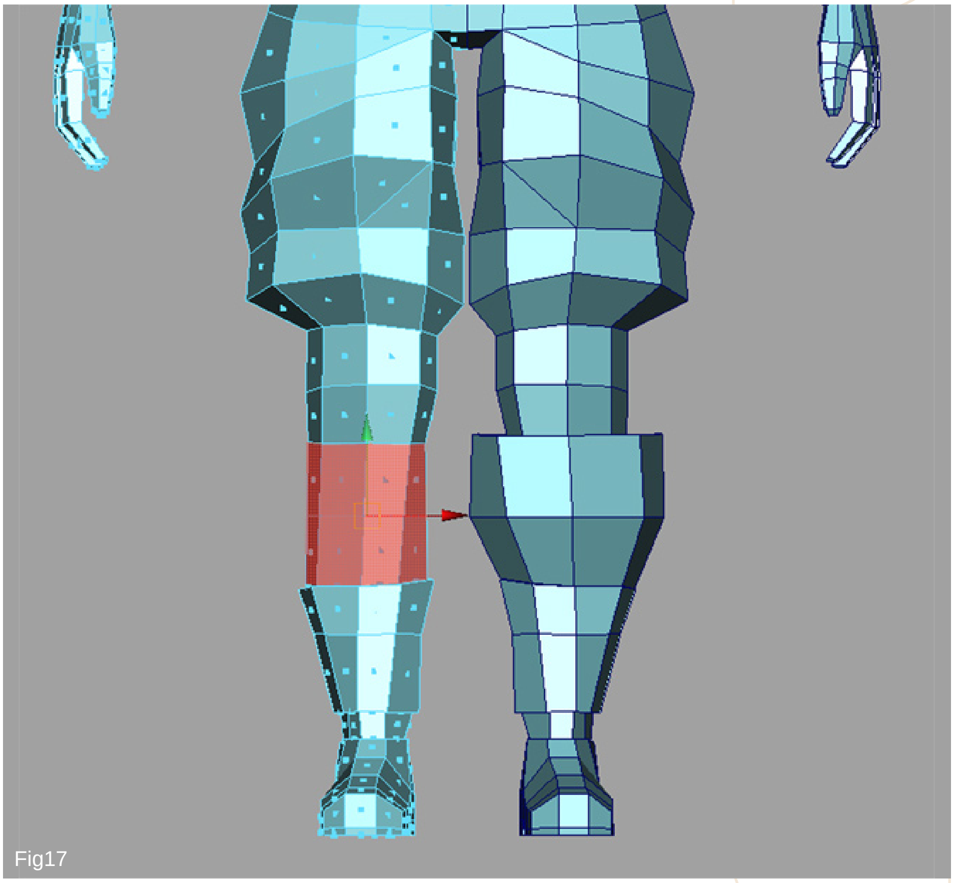


Fig17

18. Extrude all the faces inside a little bit (step 2, Fig18). After this pick two faces from the front and extrude them upward (step 3, Fig18).

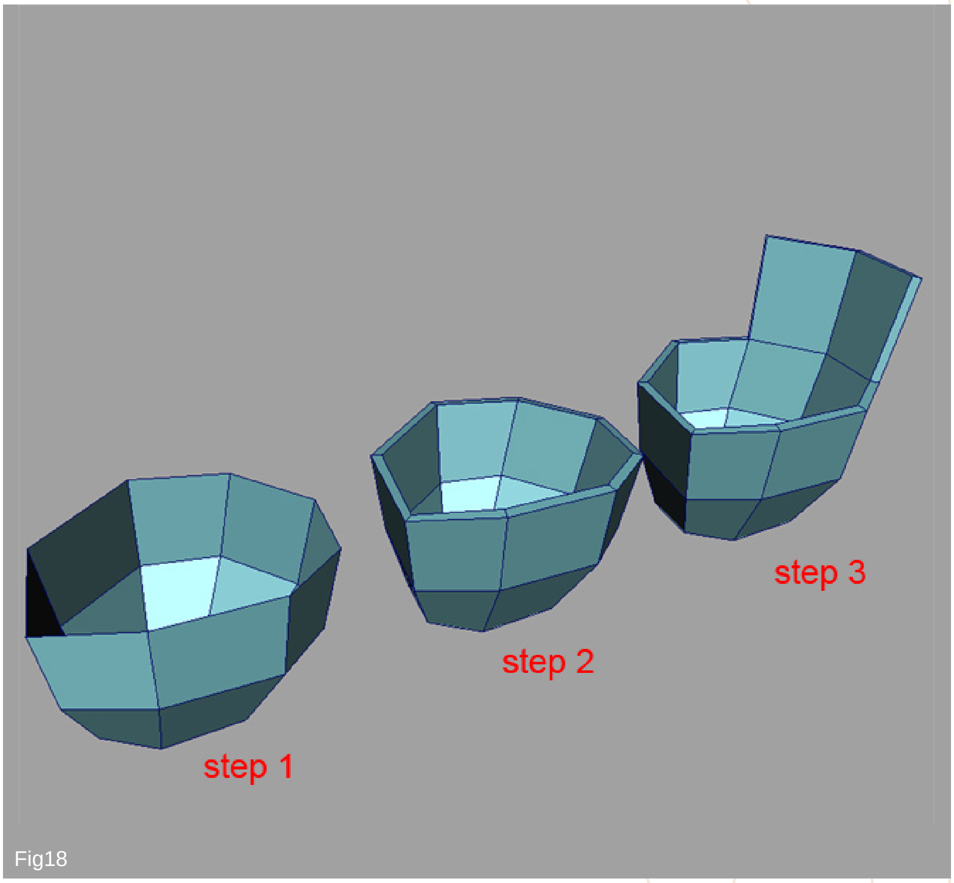


Fig18

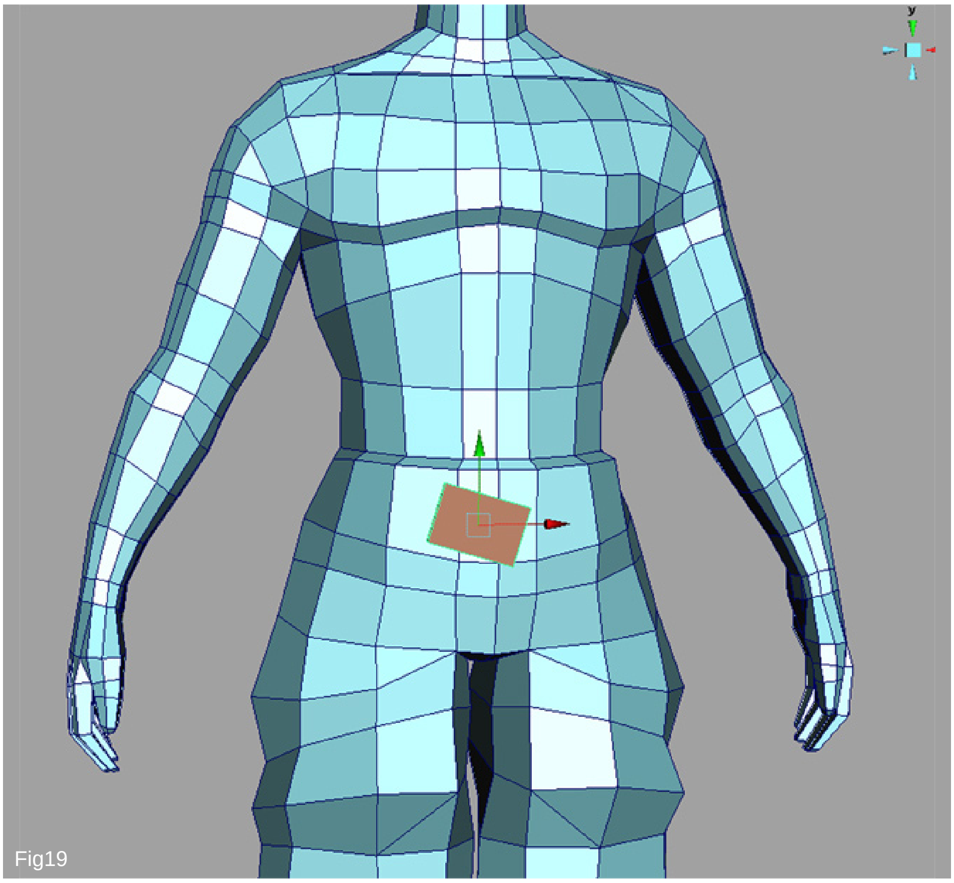


Fig19

19. Now we have one more thing to do in this tutorial: the belt. Create a box an place it in front of the trousers as in Fig19. We're going to extrude it along a curve. Next step is to create a curve.

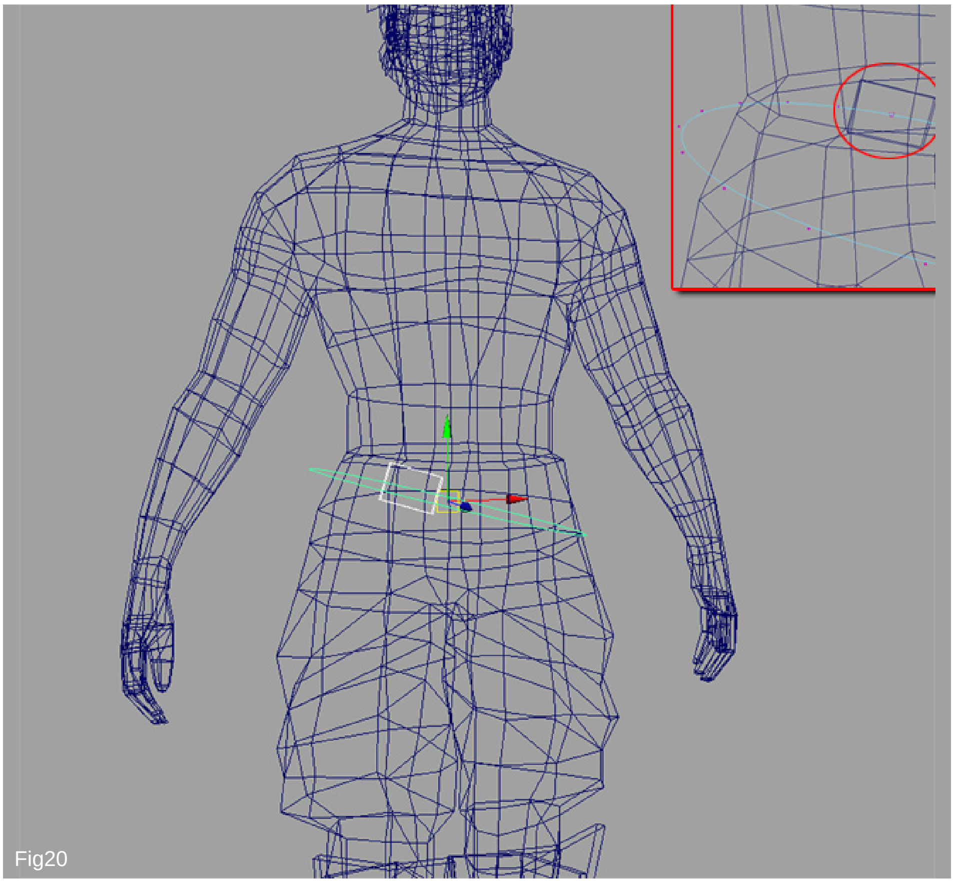
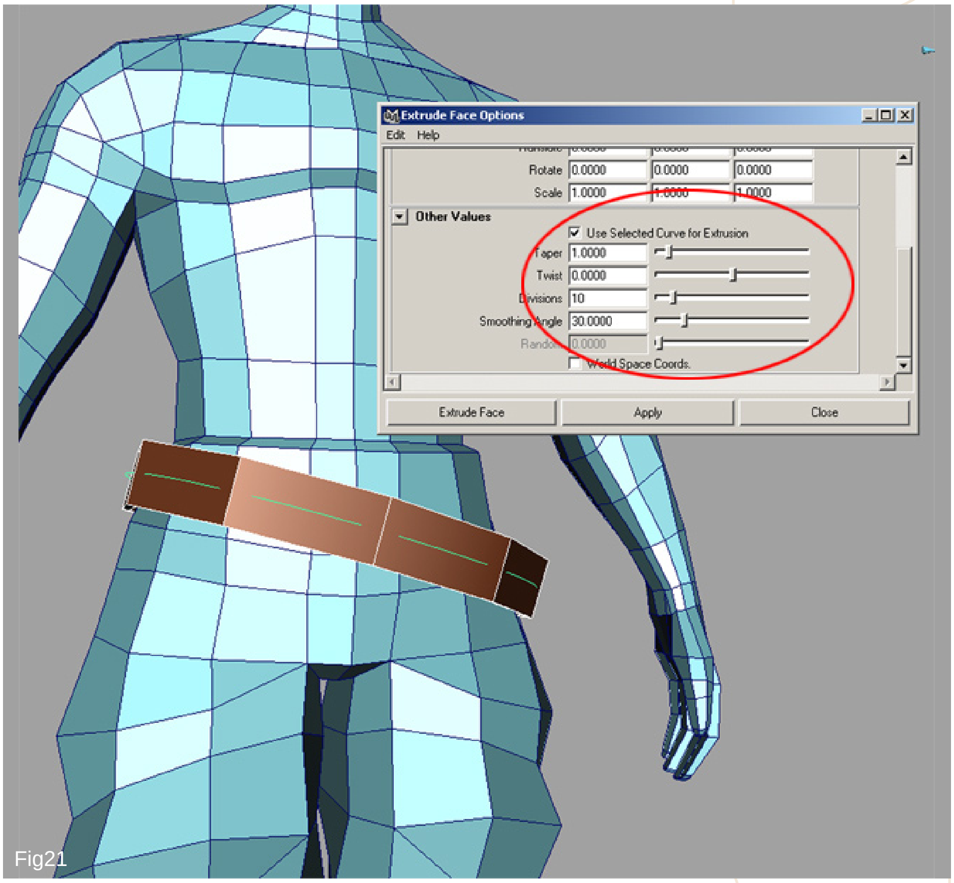


Fig20

20. Create a curve from "Create > NURBS Primitives > Circle" and put in position in the way that it wrap around the body. Snap the box to the curve by keeping "c" key pressed while you're moving the box. Also make sure that you're fixing the box at the start of the curve otherwise you'll have problems with extrude along the curve. The start of the curve is in the place you see "u". (Fig20)

21. Select one side face of the box and the curve and extrude it along the curve. Verify to have this option checked in the Extrude Face Option box (Fig21) and give 10 divisions to the extrude operator. You may also adjust the belt after extruding operation by modifying the original circle. This is very helpful especially because you can't see the belt until you make the extrusion. Now weld the beginning and the end of the belt because they are not connected, so you'll have to do it. After finishing the tweak select the belt and delete history, otherwise you will not be able to delete the circle. You have to disconnect the belt from the circle. While the belt's wires turns to pink when you select the circle, it means that the circle is still connected to the belt.



Rotate 0.0000 0.0000 0.0000
Scale 1.0000 1.0000 1.0000
☑ Use Selected Curve for Extrusion
Taper 1.0000
Twist 0.0000
Divisions 10
Smoothing Angle 30.0000
Random 0.0000
☐ World Space Coords.

Fig21

22. Now transform the verts to fit the belt properly around the body (Fig22).

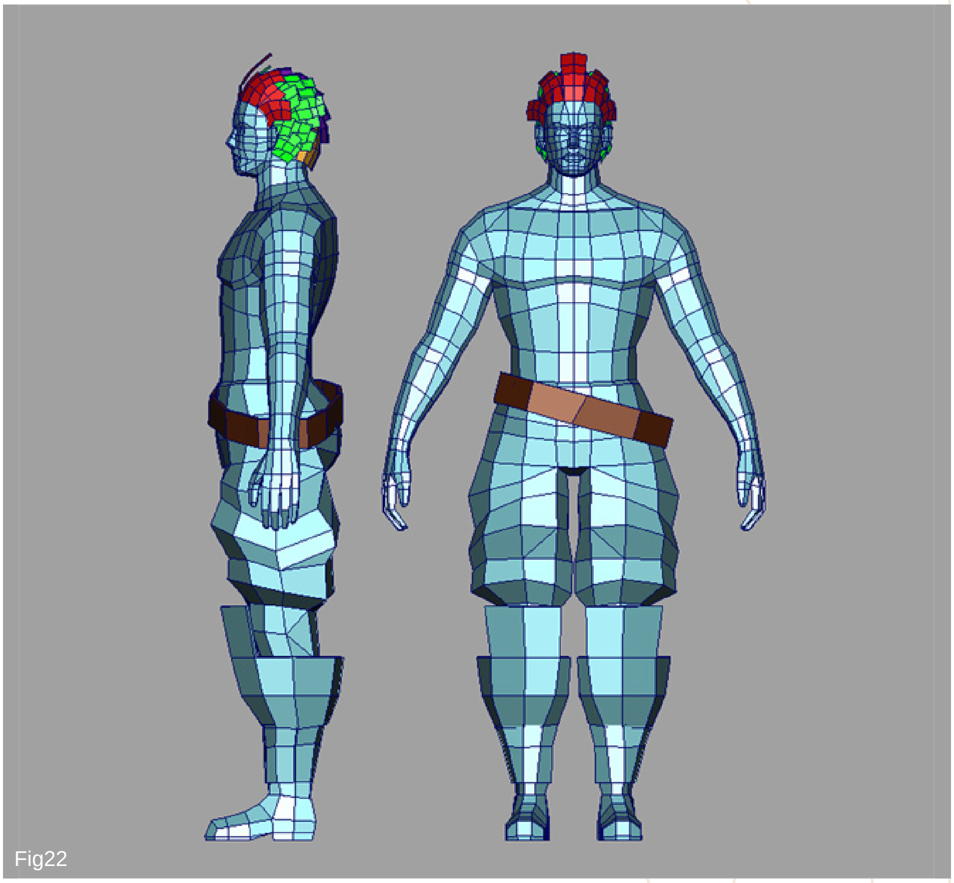


Fig22

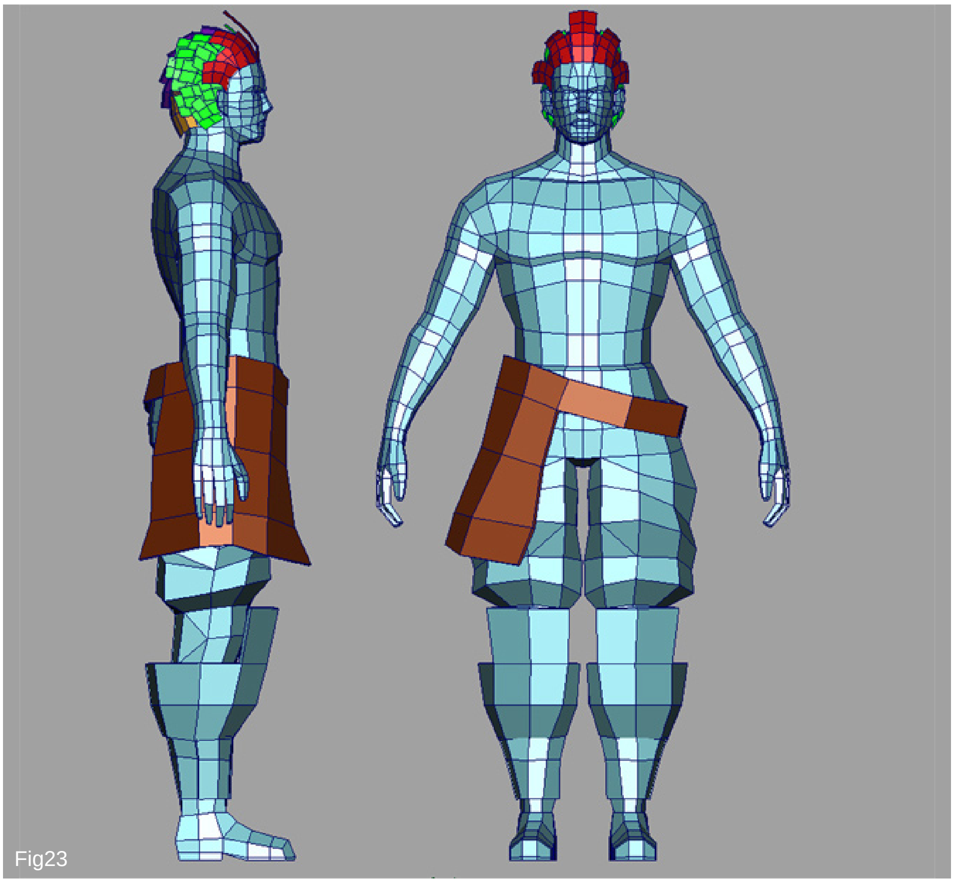
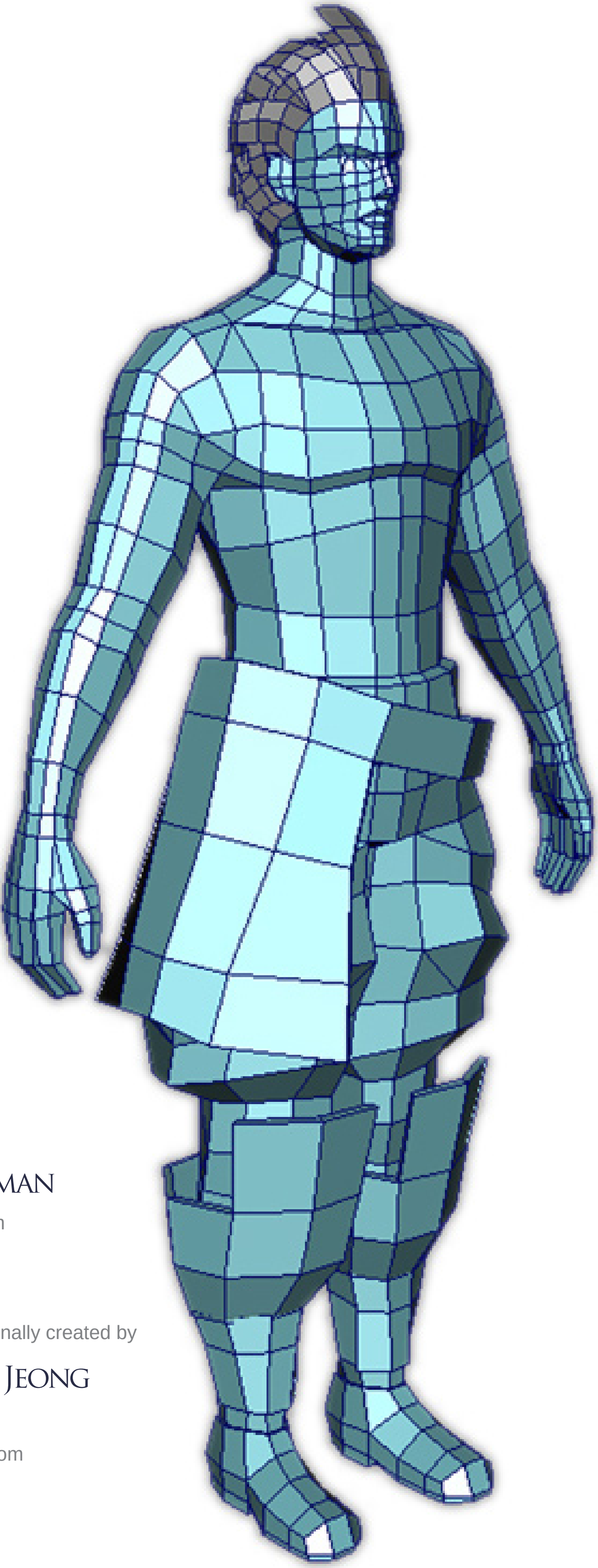
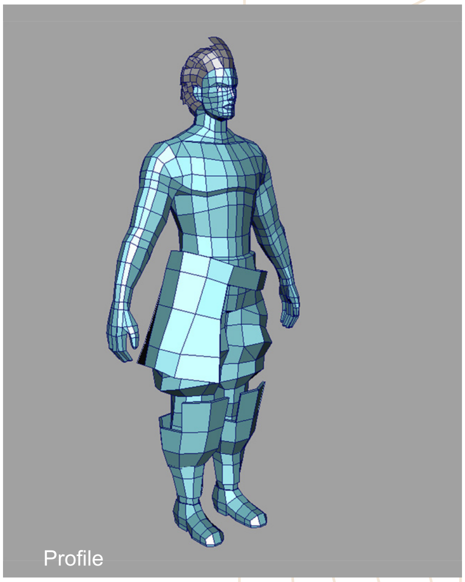


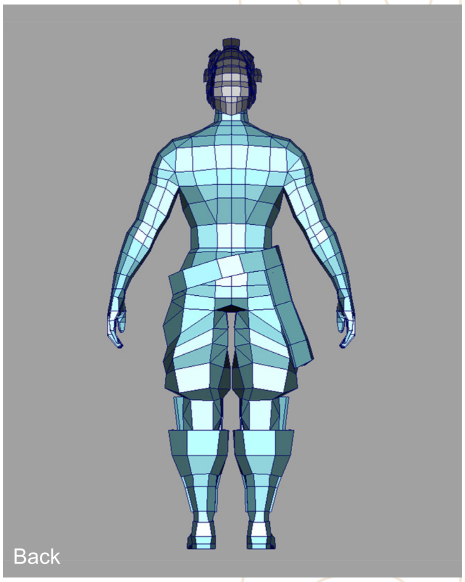
Fig23

23. Now in order to finish everything extrude the four faces from the down left side of the belt downward and create the cloth that will hang on swordmaster's side (Fig23). That's it for now. See you next month.

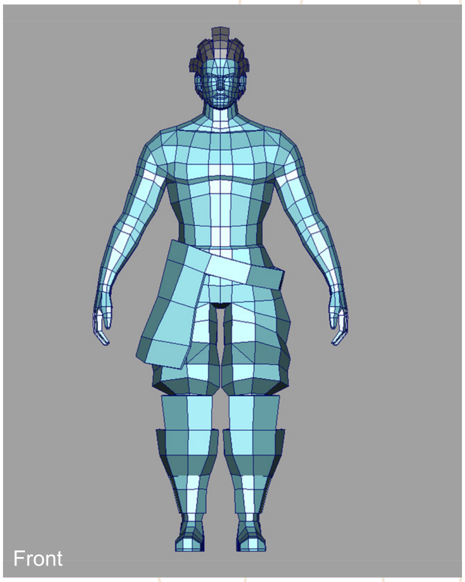




Profile



Back



Front

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The ‘Swordmaster’

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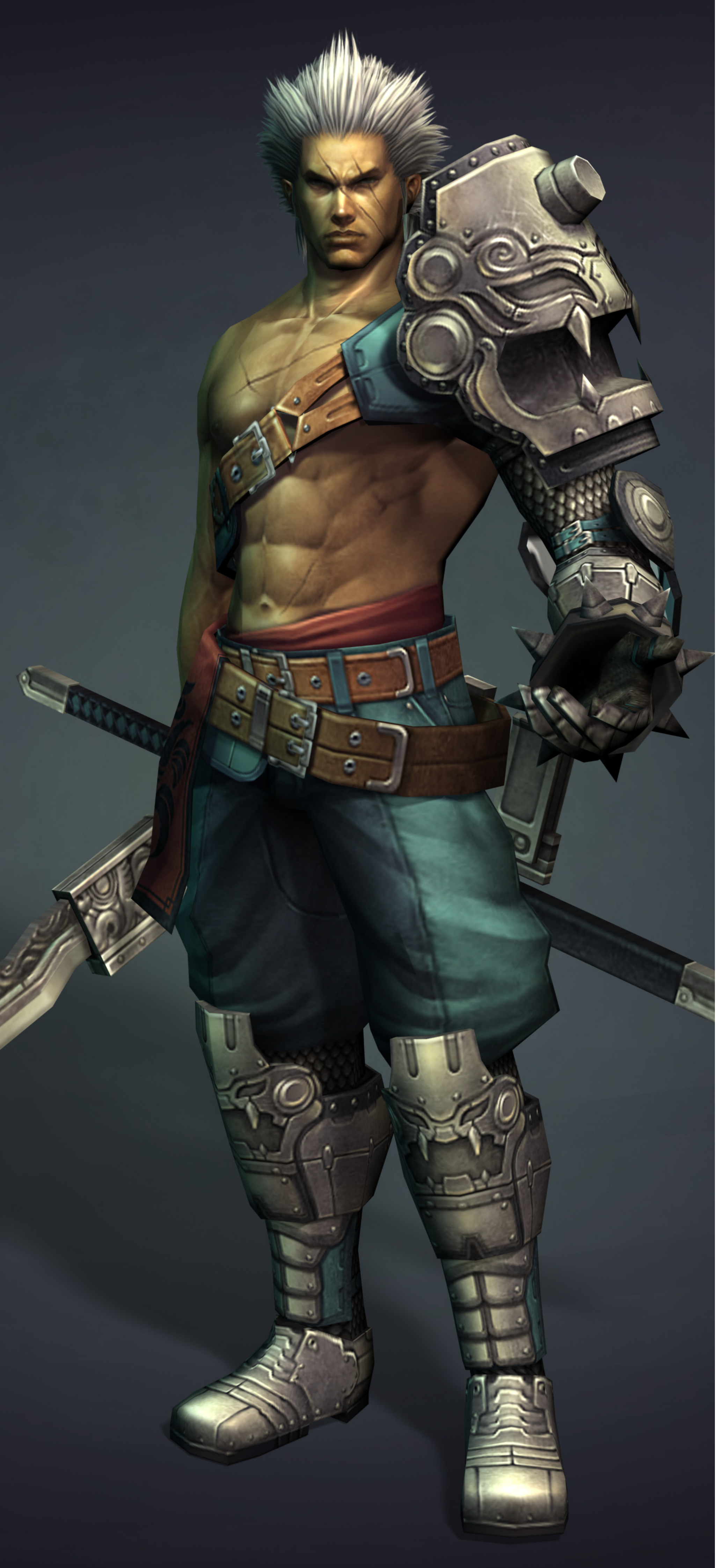


THE SWORDMASTER

SOFTIMAGE® | XSI

Is our new precise, step by step tutorial for highly polished, low polygon game character with detailed texturing for real-time rendering. We have had the tutorial created for the 5 major 3d applications, but even if you are not a user of one of them, the principles should be easily followed in nearly all other 3d applications. Over the next 8 months we will outline in detail the process for creating the 'Swordmaster' you see on the left. The schedule for the different parts of the tutorial is as follows:

Issue 009 May 06
MODELING THE HEAD
Issue 010 June 06
MODELING THE TORSO
Issue 011 July 06
MODELING THE ARMS & LEGS
Issue 012 August 06
MODELING THE CLOTHING & HAIR
Issue 013 September 06
MODELING THE ARMOUR
Issue 014 October 06
MAPPING & UNWRAPPING
Issue 015 November 06
TEXTURING THE SKIN & BODY
Issue 016 December 06
TEXTURING THE ARMOUR & CLOTHING

ENJOY ...

PART 4

MODELLING THE HAIR AND CLOTHING

Once the modelling of the body is done, we can start working on the hair and clothing for this low-poly character. If you followed the previous parts of this tutorial, you should already have the complete body mesh.

1.Select the polygons marked in red in Fig01; use the Extract (Keep) command to create a detached copy of them, and then rotate them like shown in the picture. You can keep the Alt key pressed and adjust the transform center (also using snaps):

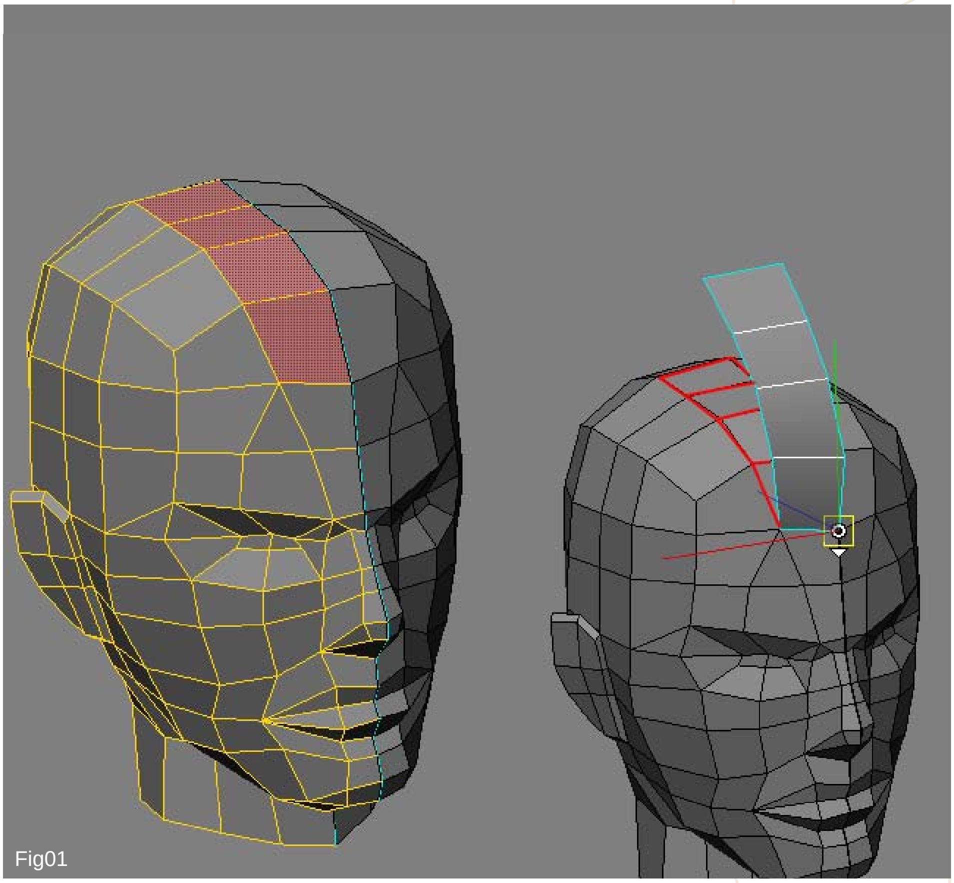


Fig01

2.Copy these new polygons, using the Snaps for better precision. After every duplication, snap the bottom vertices of the new polygons to the head vertices, like shown in Fig02:

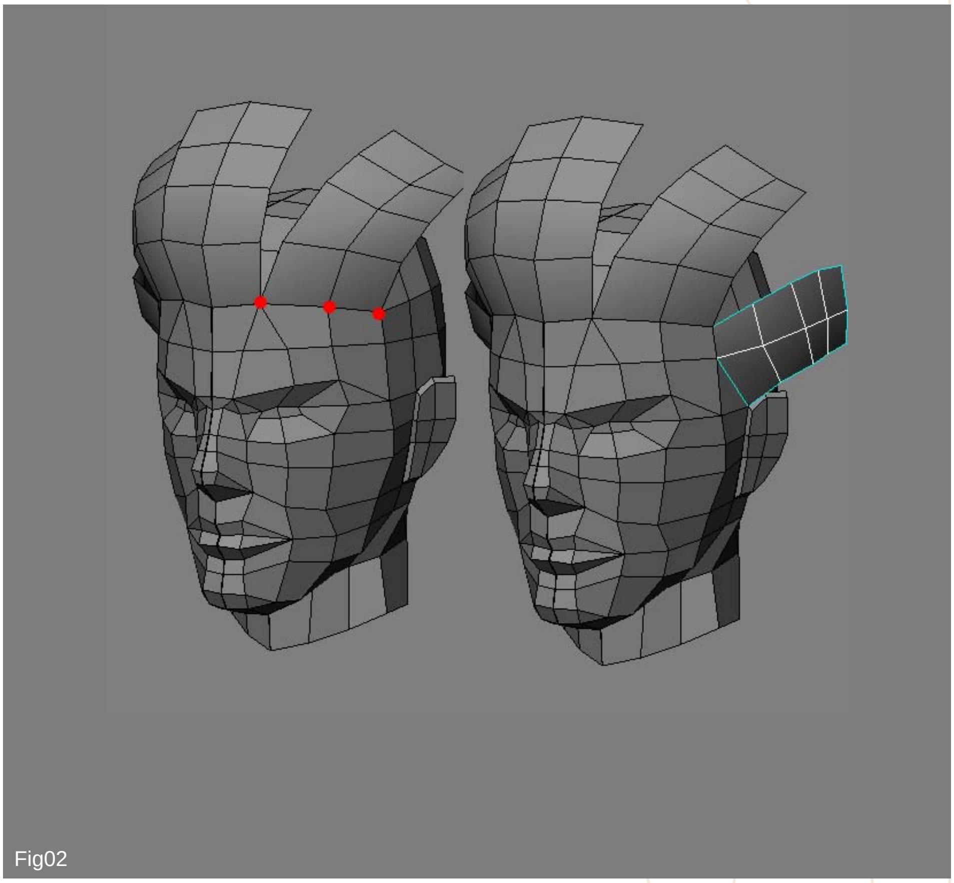


Fig02

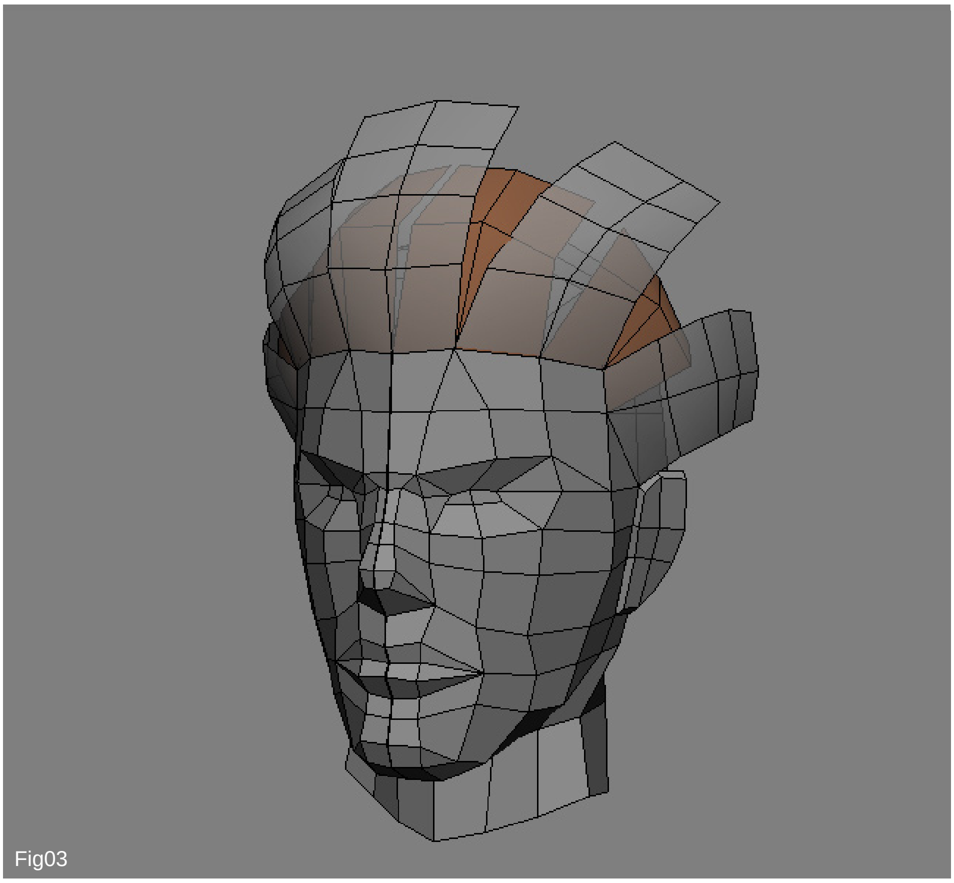


Fig03

3.Duplicate two other sets of polygons like shown in Fig03. A semi-transparent material was given to the first sets for better visualization:

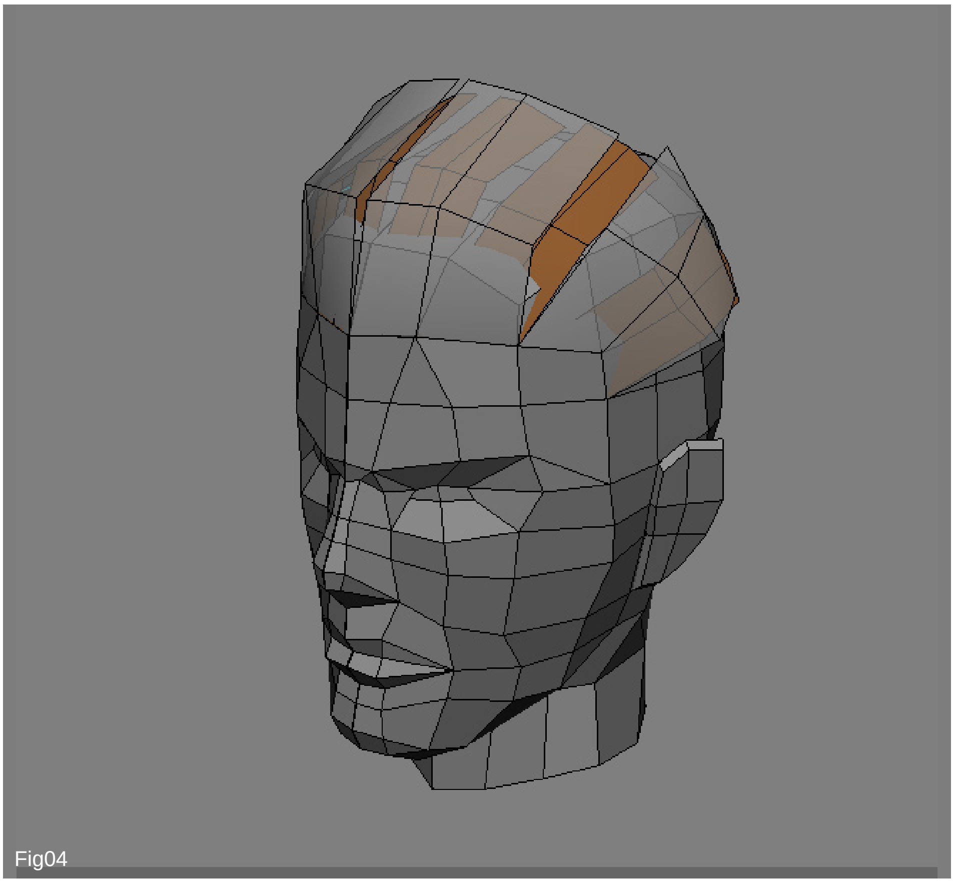


Fig04

4.Duplicate the polygons sets again, but this time don't worry about snapping the vertices, just try to give a correct shape to the new polygons, like shown inf Fig04:

5.Now we can start building the back part of the hair. You can use the previous technique: detach some polygons from the head, and then refine the new mesh until you get something similar to Fig05. This new mesh is still divided into two halves, for UV-Mapping reasons; we'll see later how it works.

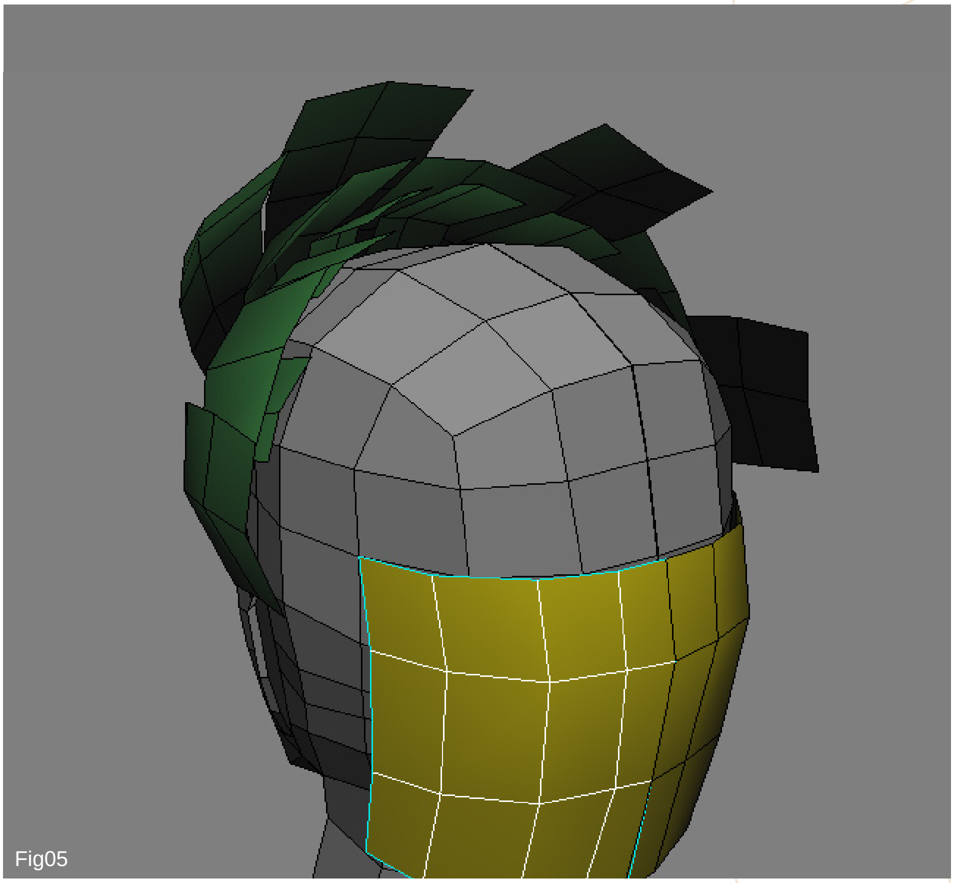


Fig05

6.Now it's time to fill up the rest of the head with new sets of polygons. As usual, you can detach them from the head itself, and then adjust the vertices to give them a better shape. Create three new sets of 9x9 polygons, like shown in Fig06:

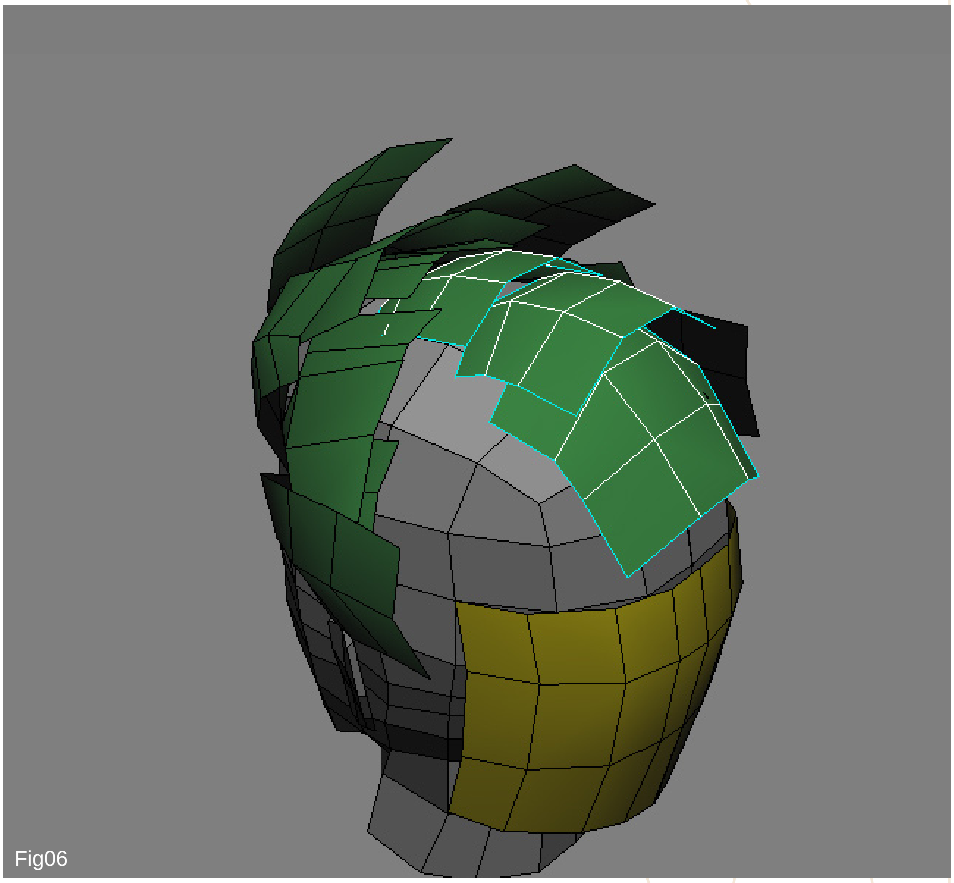


Fig06

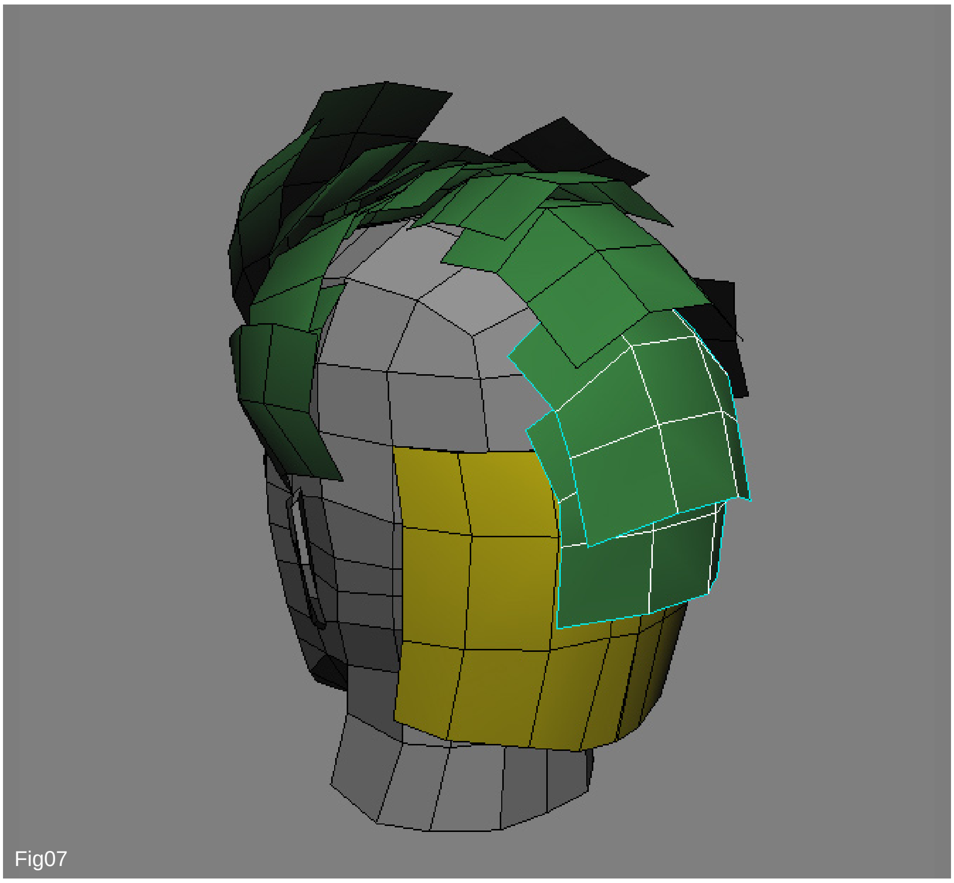


Fig07

7.Add two extra sets of polygons like shown in Fig07:

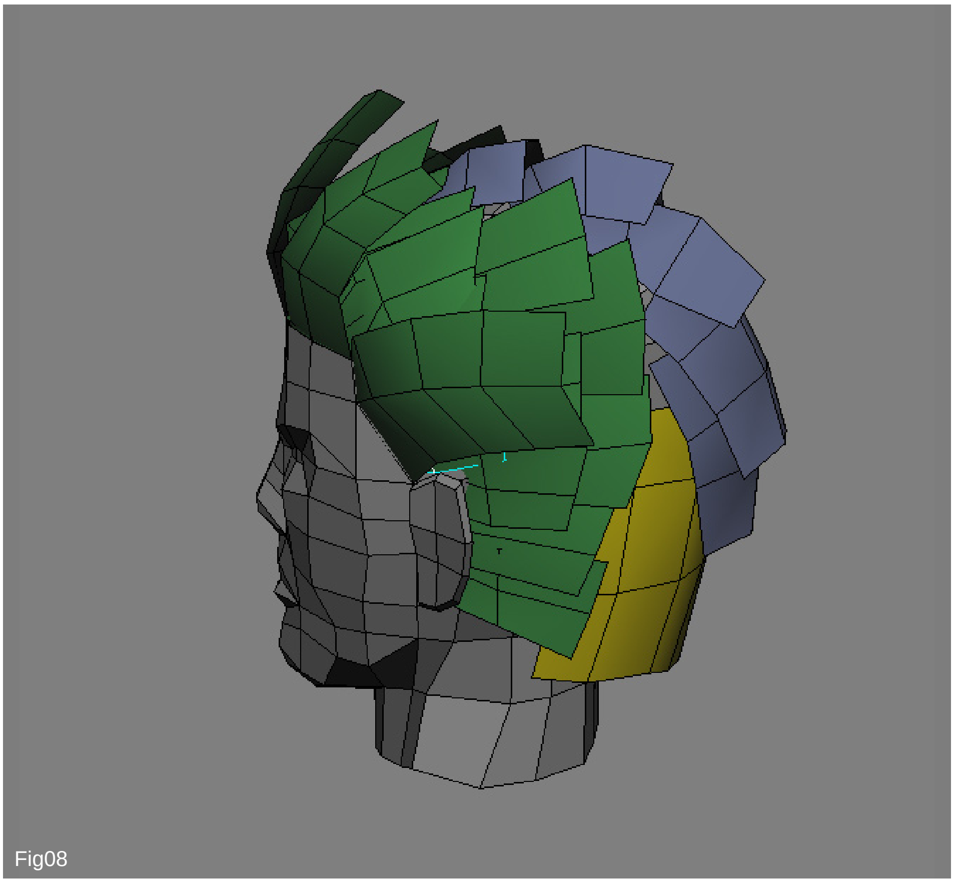


Fig08

8.Add two rows of polygon sets like shown in Fig08 to complete the hair:

9.Duplicate the new sets on the other half of the head (Fig09):

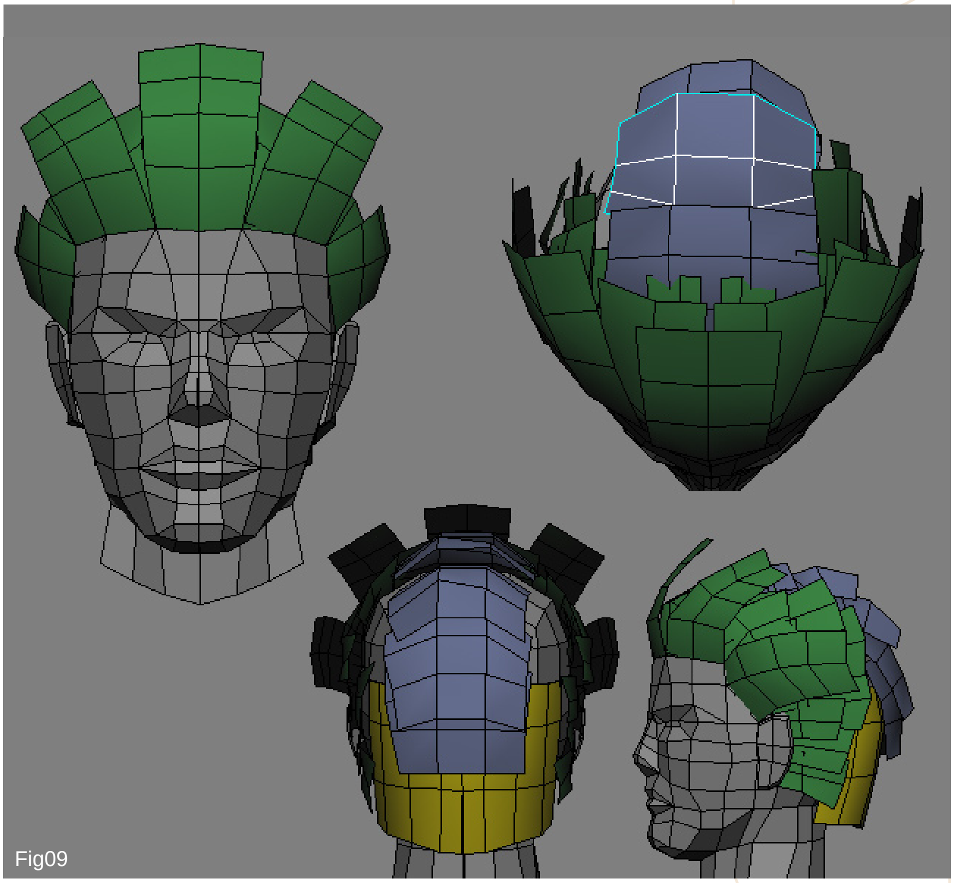


Fig09

10.Let’s move on to the clothing part. Select the polygons that will make up the trousers (shown in red in Fig10); use the Extract (Delete) command to detach them, and then use the Push operator to make them slightly larger than the original mesh:

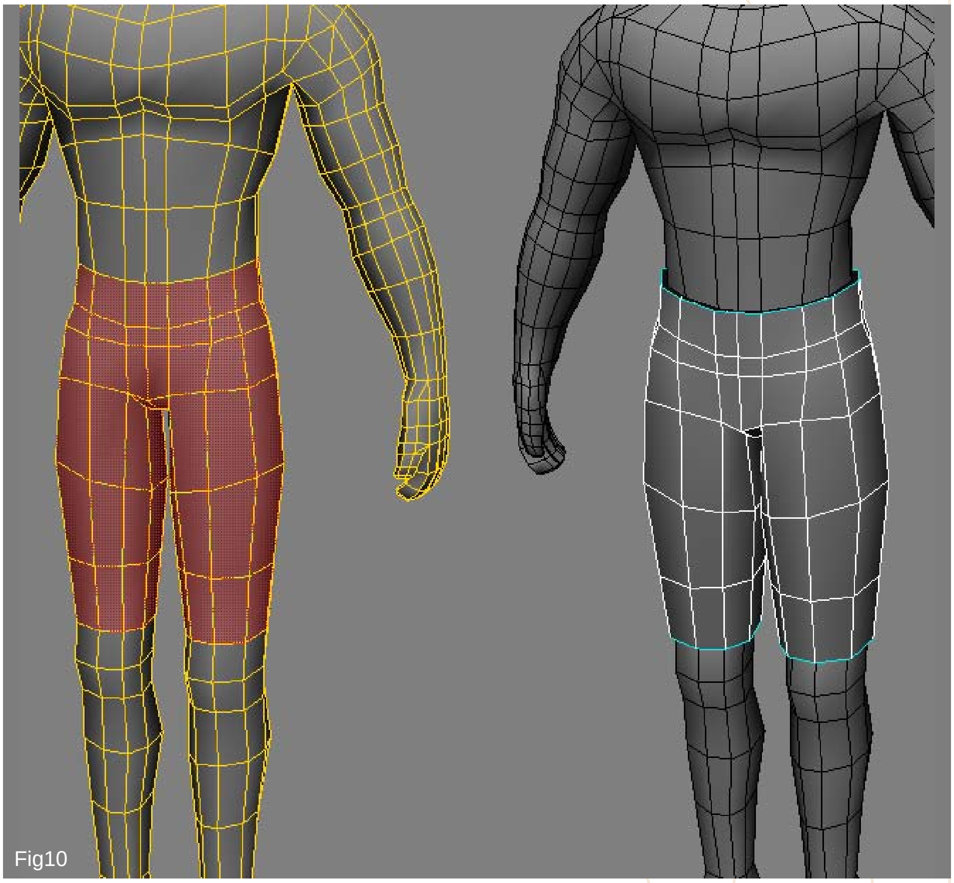


Fig10

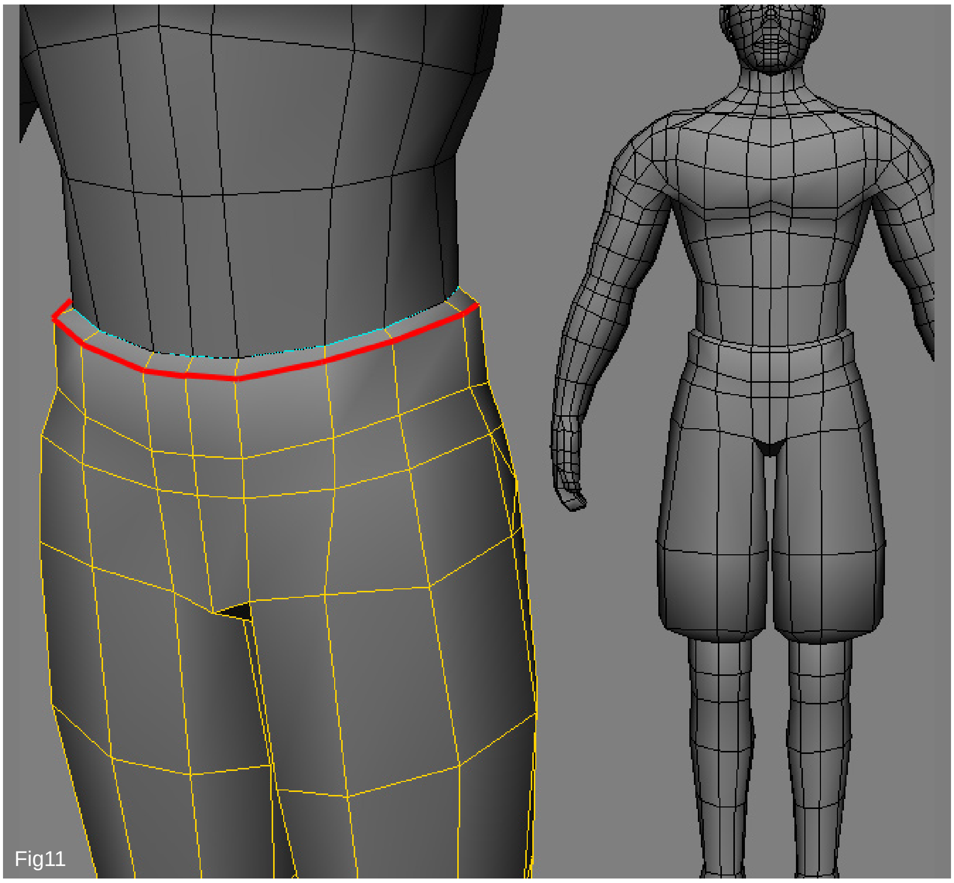


Fig11

11.Create a cut (marked in red in Fig11) and then use the Snap feature to realign the vertices of the trousers to the body. Now take some time to reshape the vertices until you get something like the picture in the right part of Fig11:

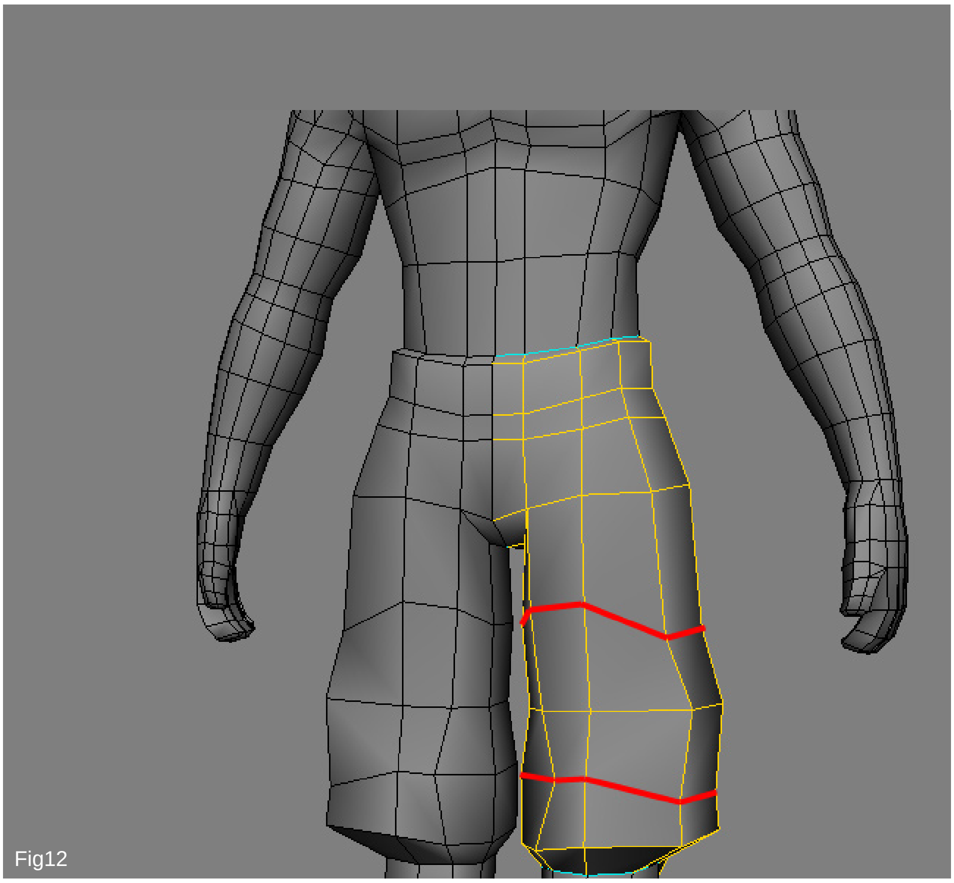


Fig12

12.Add two new cuts like shown in Fig12:

13.Use the Add Edge tool to create a cut from the front of the model to the back (Fig13):

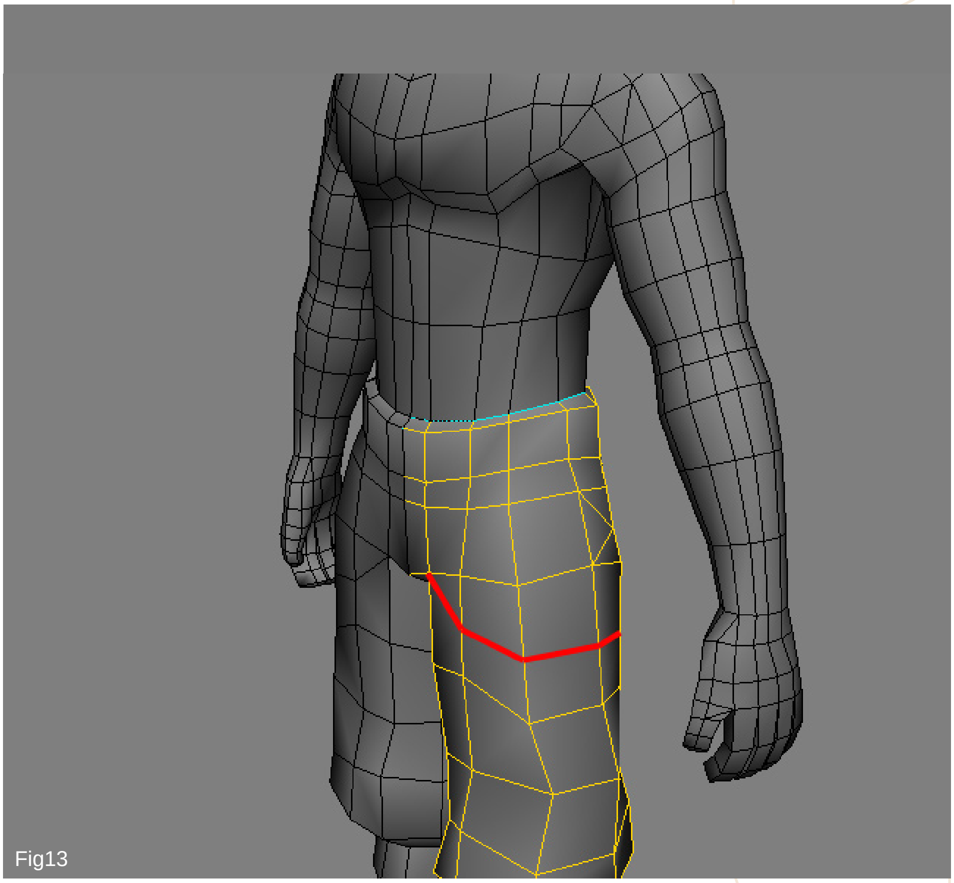


Fig13

14.Make more cuts in the back part of the trousers; just try always to end up with quads, like shown in Fig14:

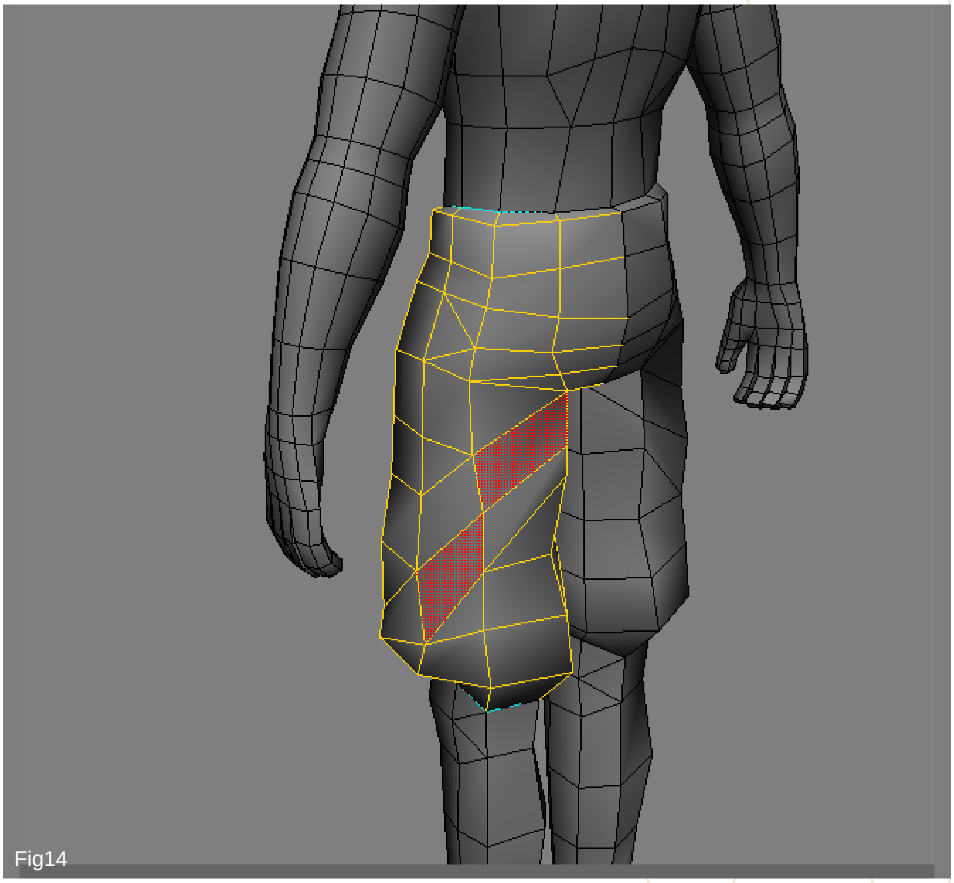


Fig14

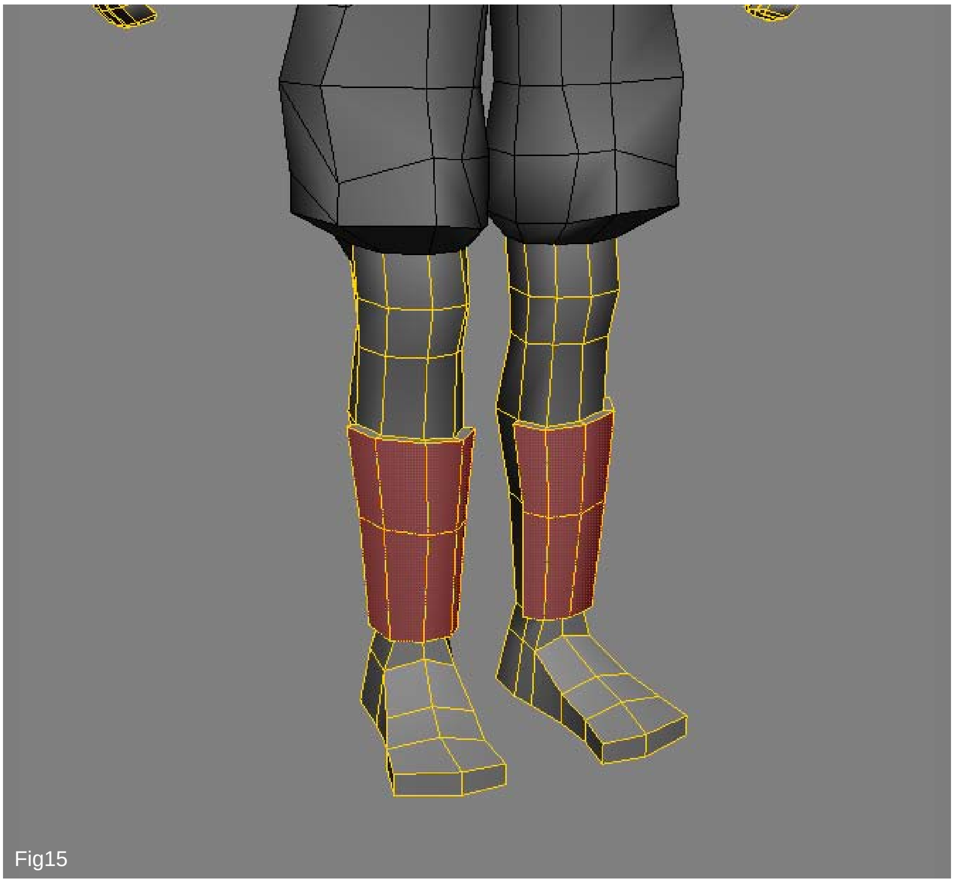


Fig15

15.Now let's create the shin guards. Just select the polygons marked in red in Fig15, duplicate/ extrude them (Ctrl + D) and then use Push operator to expand them outwards:

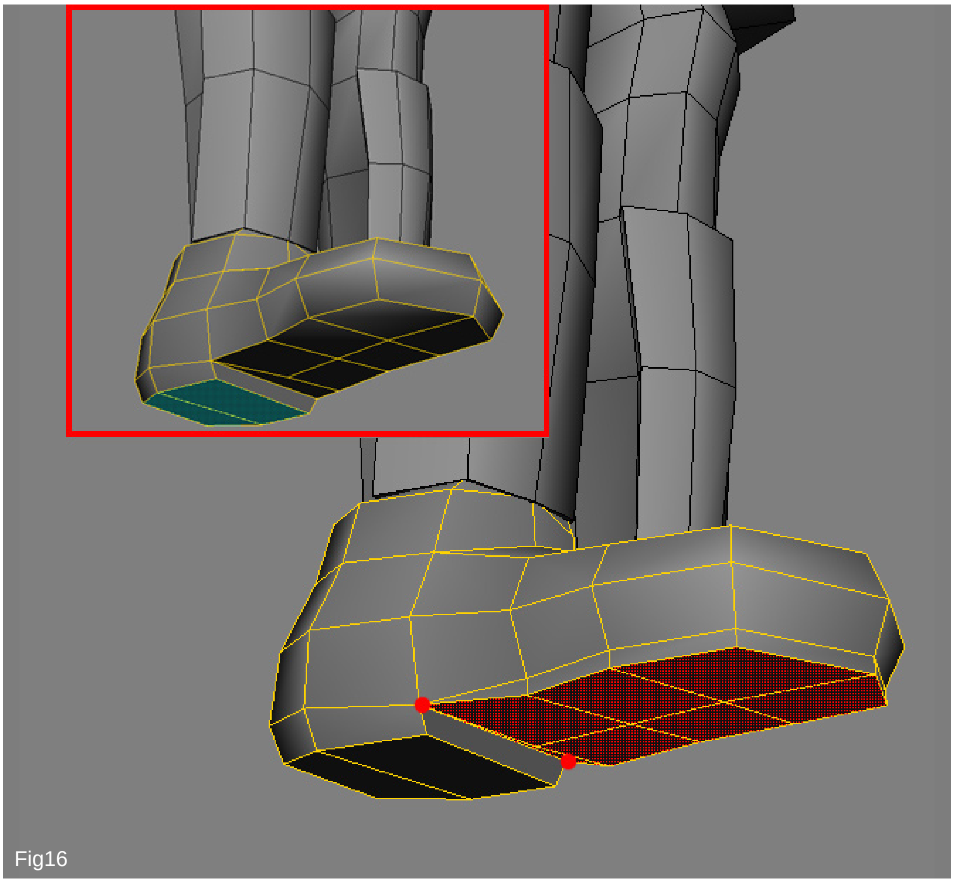


Fig16

16.Select the polygons of the foot, and to the same thing you've done earlier for the trousers: detach them (with Extract/Delete) and use Push operator to slightly enlarge them. Select the polygons of the heel and extrude them downward. Do the same for the sole polygons, but this time weld the last two vertices like shown in Fig16:

17.Extract (Keep) the polygons marked in red in Fig17; scale and reshape the new mesh using Fig17 as a reference:

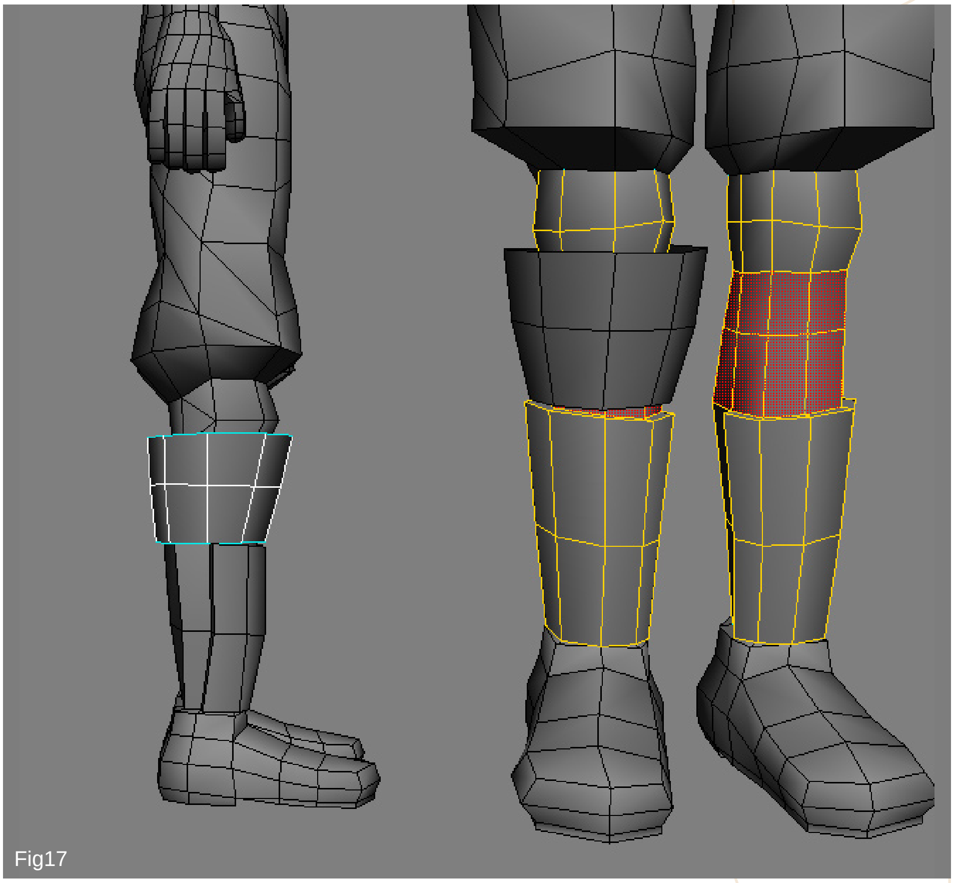


Fig17

18.Hide everything except this new mesh (it will be easier to work without all the objects around in the viewport). Duplicate the mesh (Ctrl + D) and scale it slightly inward; also, use the Invert Polygons command to flip the normals (phase 2 in Fig18). Select the outer mesh and use the Merge command to join it with the inner mesh; in the Merge property window, activate the Blend option to create a solid border between the two meshes; also, click on the Delete button in the Merge property window (phase 3 in Fig18). Finally, extrude the polygons marked in red in phase 4 of Fig18 a couple of times:

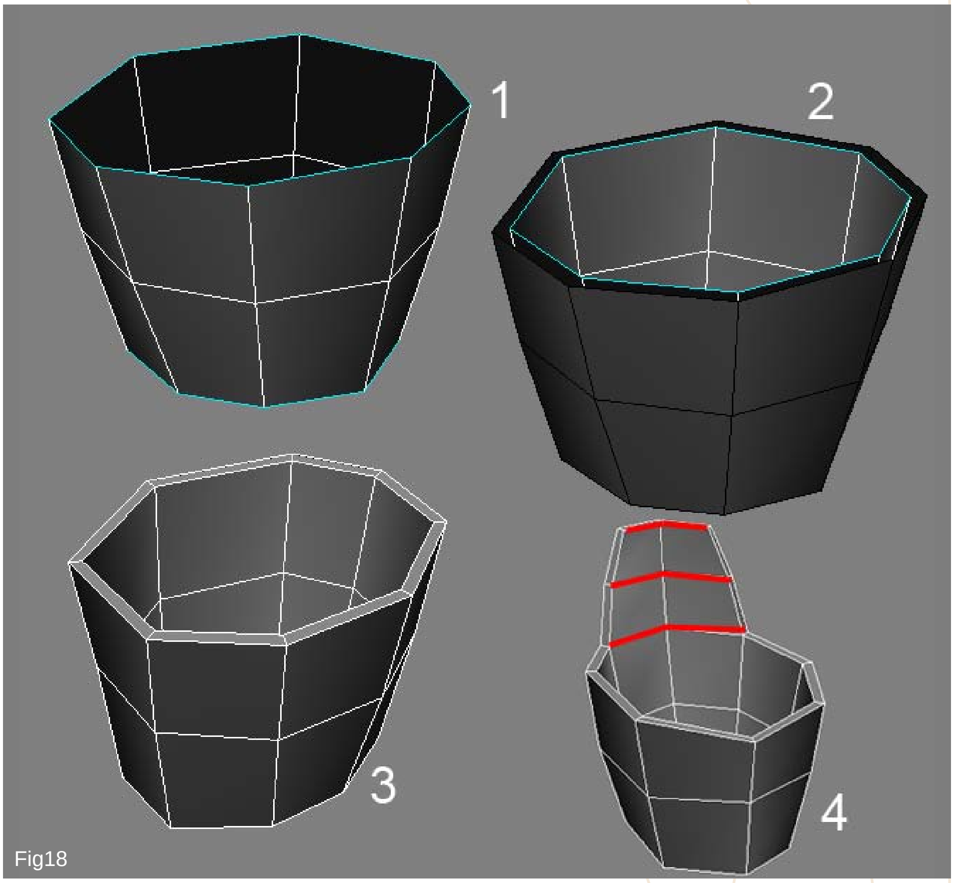
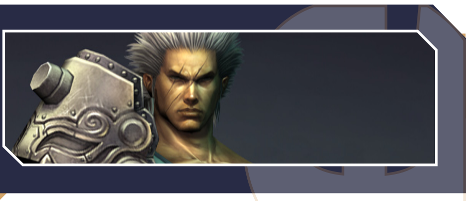


Fig18



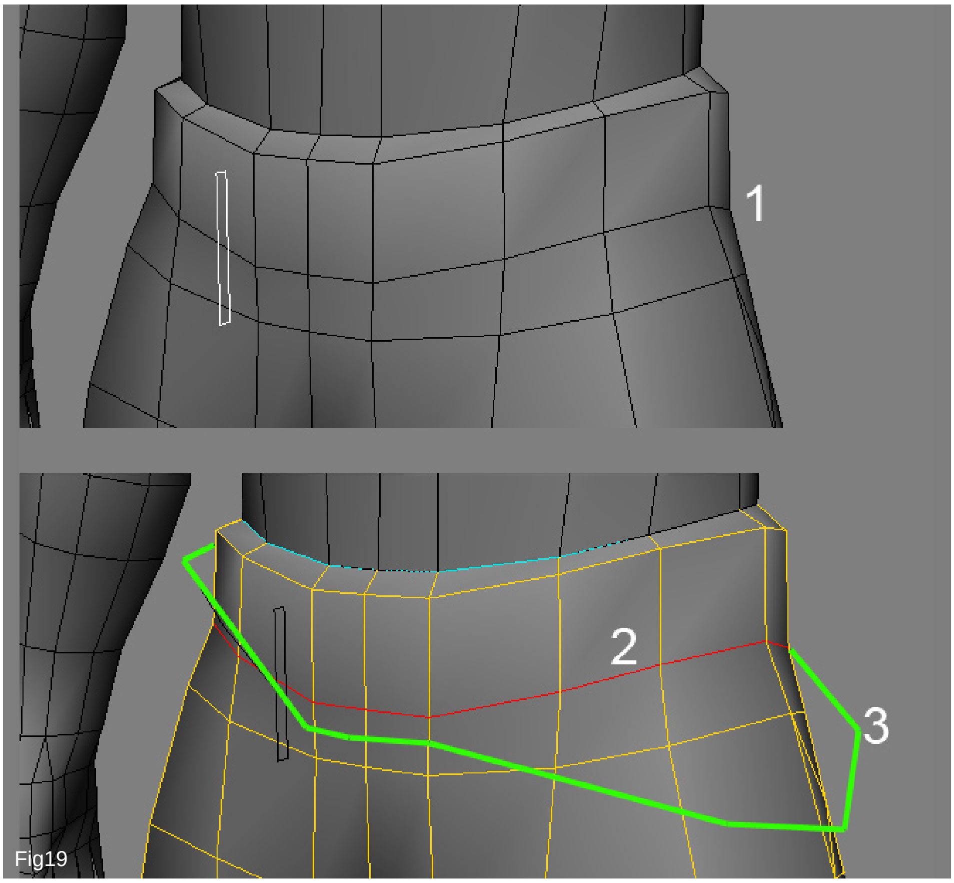


Fig19

19.Now let's create the final part of the clothing: the belt. Create a Square and scale/position it like shown in phase 1 of Fig19. Select the edgeloop marked in red in Fig19, extract it with Extract from Edges and use the Push operator to slightly scale it outwards (phase 3 of Fig19):

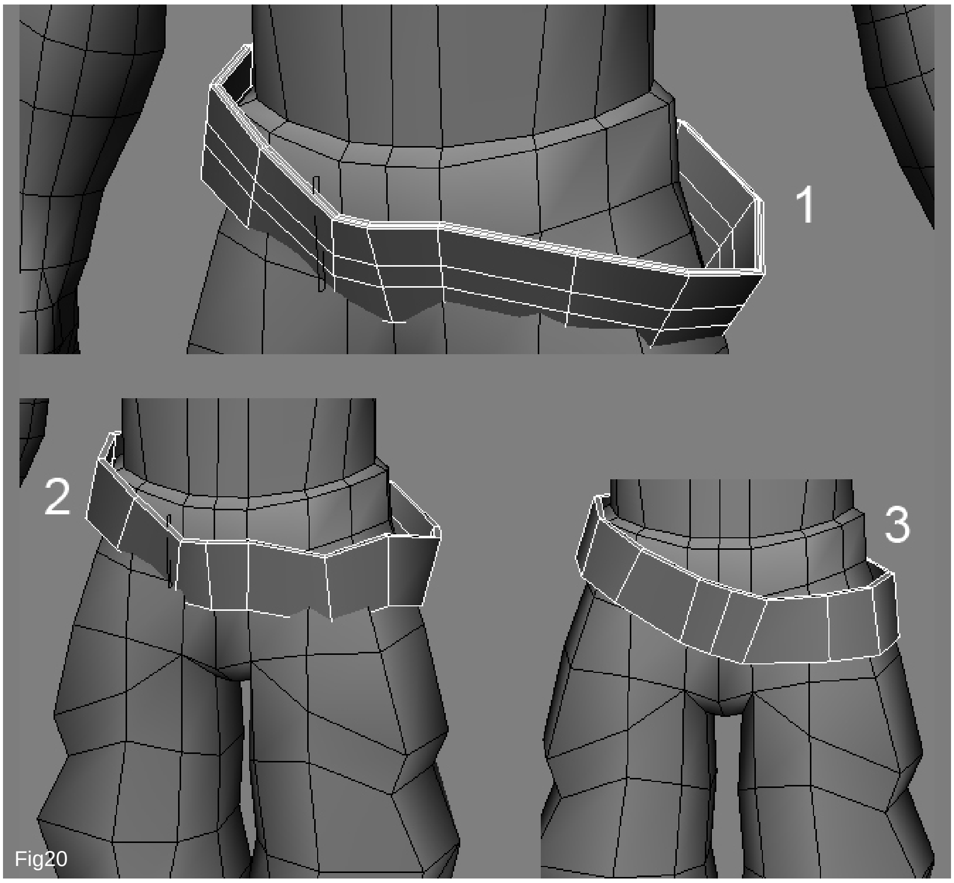
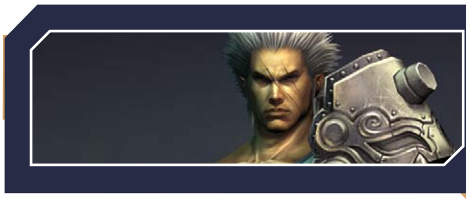
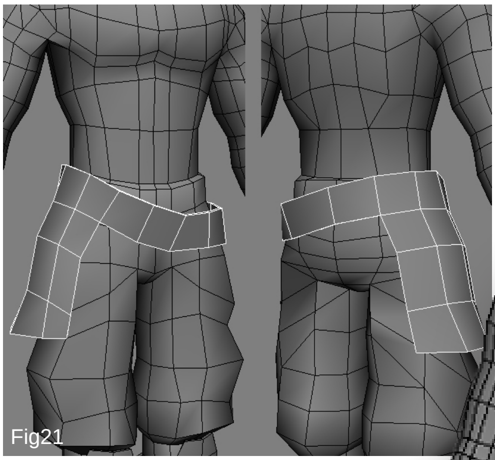


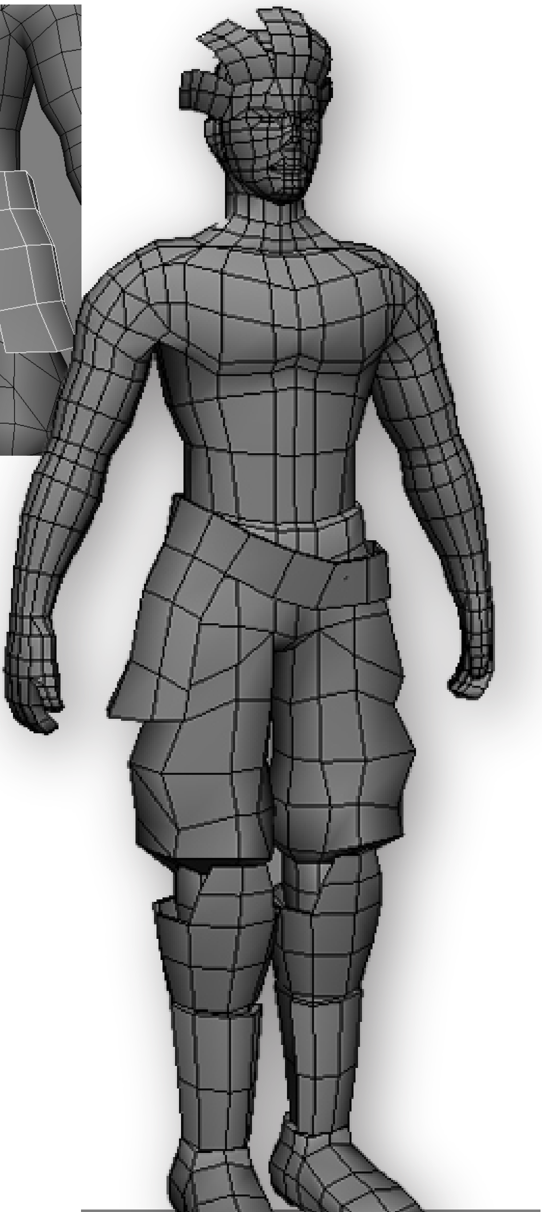
Fig20

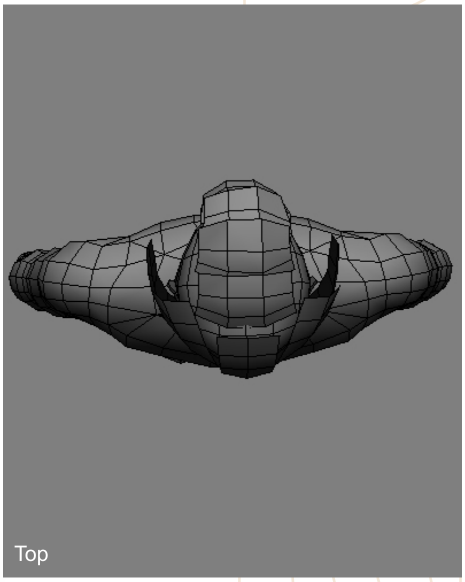
20.Use the Extrude along Curve tool to extrude the square on the previously extracted curve (phase 1 of Fig20).Clean all the unuseful edges until you get something like phase 2 of Fig20. Finally, take some time to adjust the shape of the belt; don't forget that there is still a relationship between the original path curve and the newly generated belt mesh, so if you modify the vertices of the path, the mesh will modify accordingly. Use this feature to give the belt a better shape, like shown in phase 3 of Fig20:

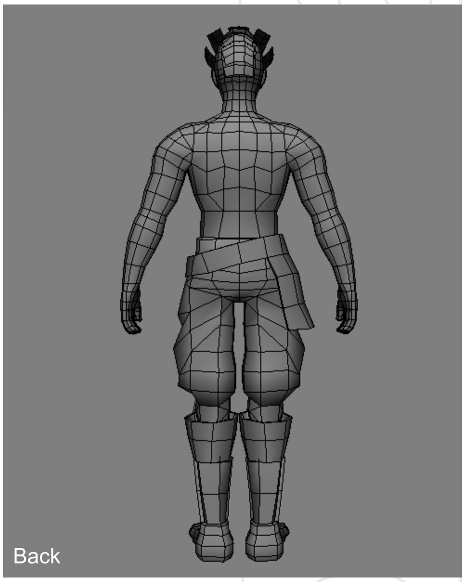


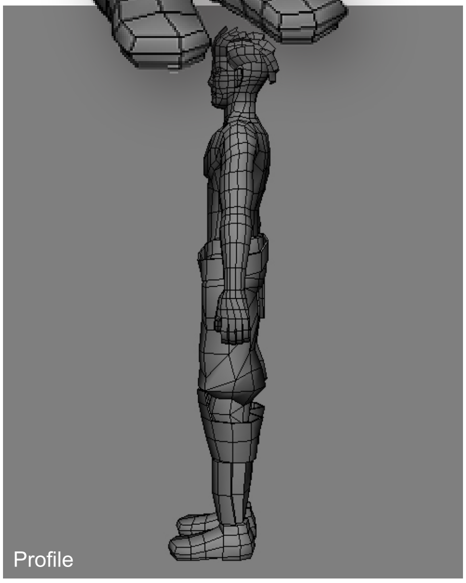


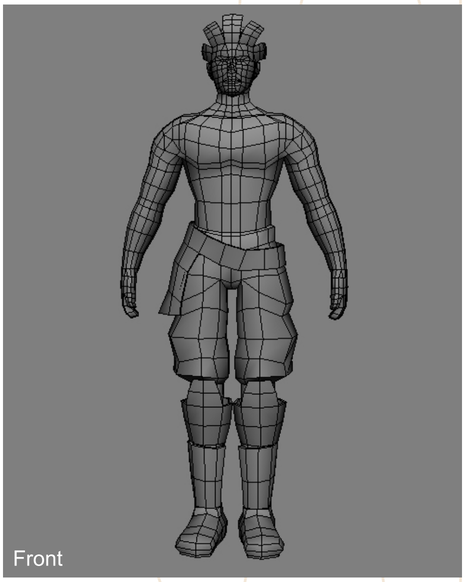
21.The final touch: extrude the four bottom polygons from the right side of the belt, like shown in Fig21:











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